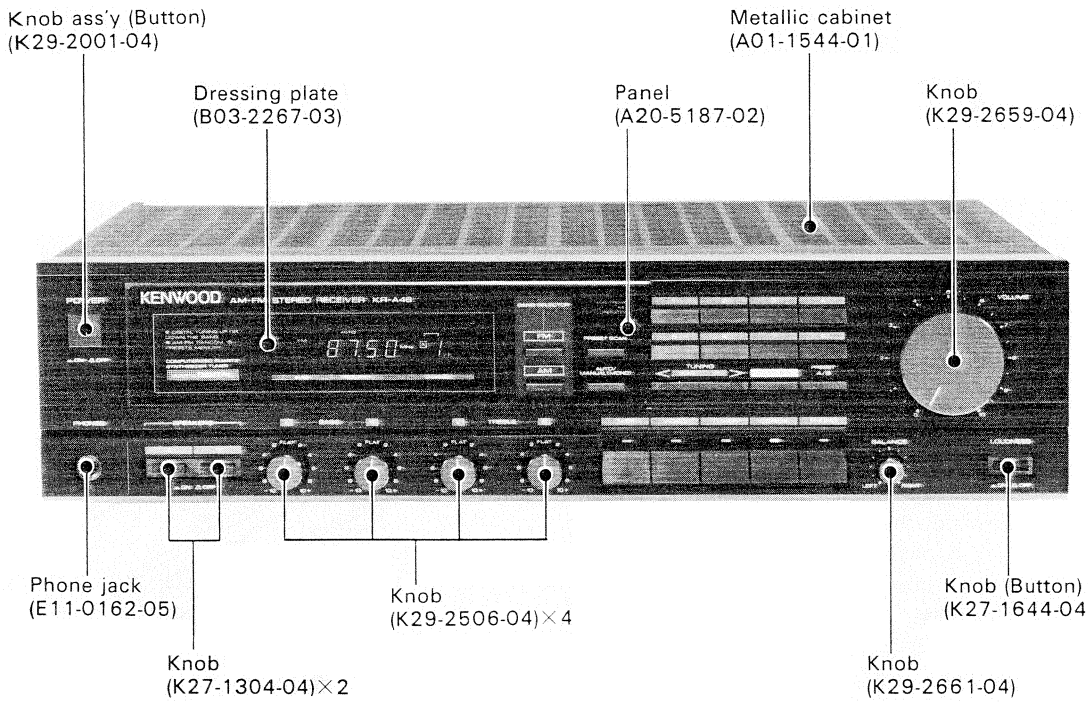
AM-FM STEREO RECEIVER

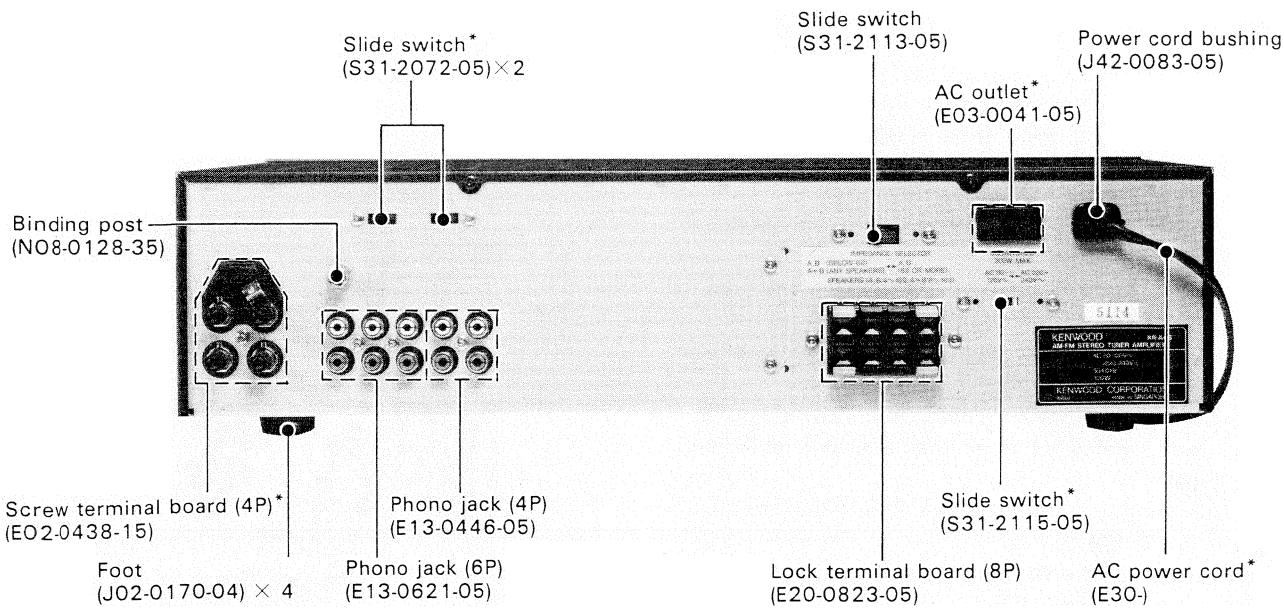
KR-A46

SERVICE MANUAL

KENWOOD

B51-3208-00 (G) 2238





* Refer to parts list on page 28.

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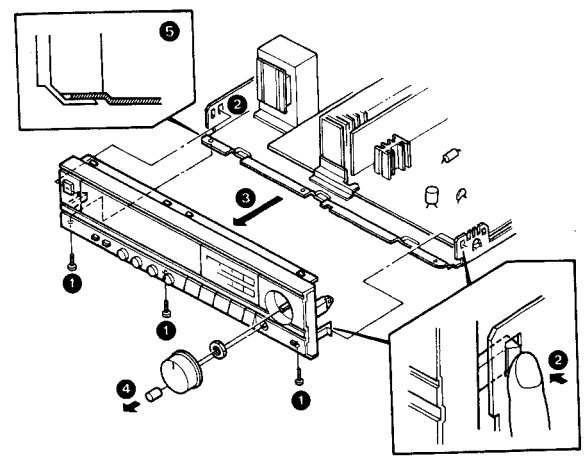
CONTENTS

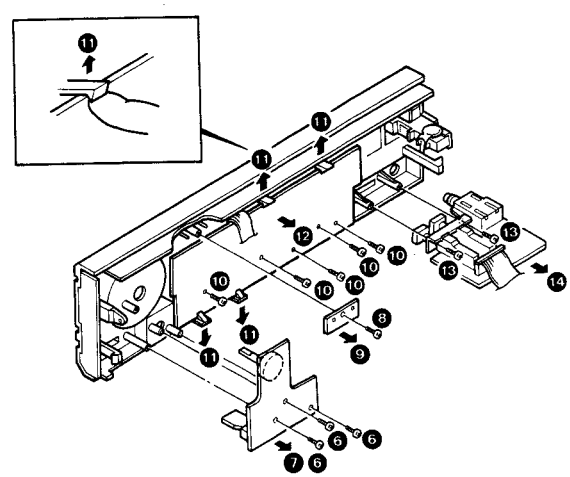
DISASSEMBLY FOR REPAIR

(Remove the metallic cabinet before performing the following operations.)

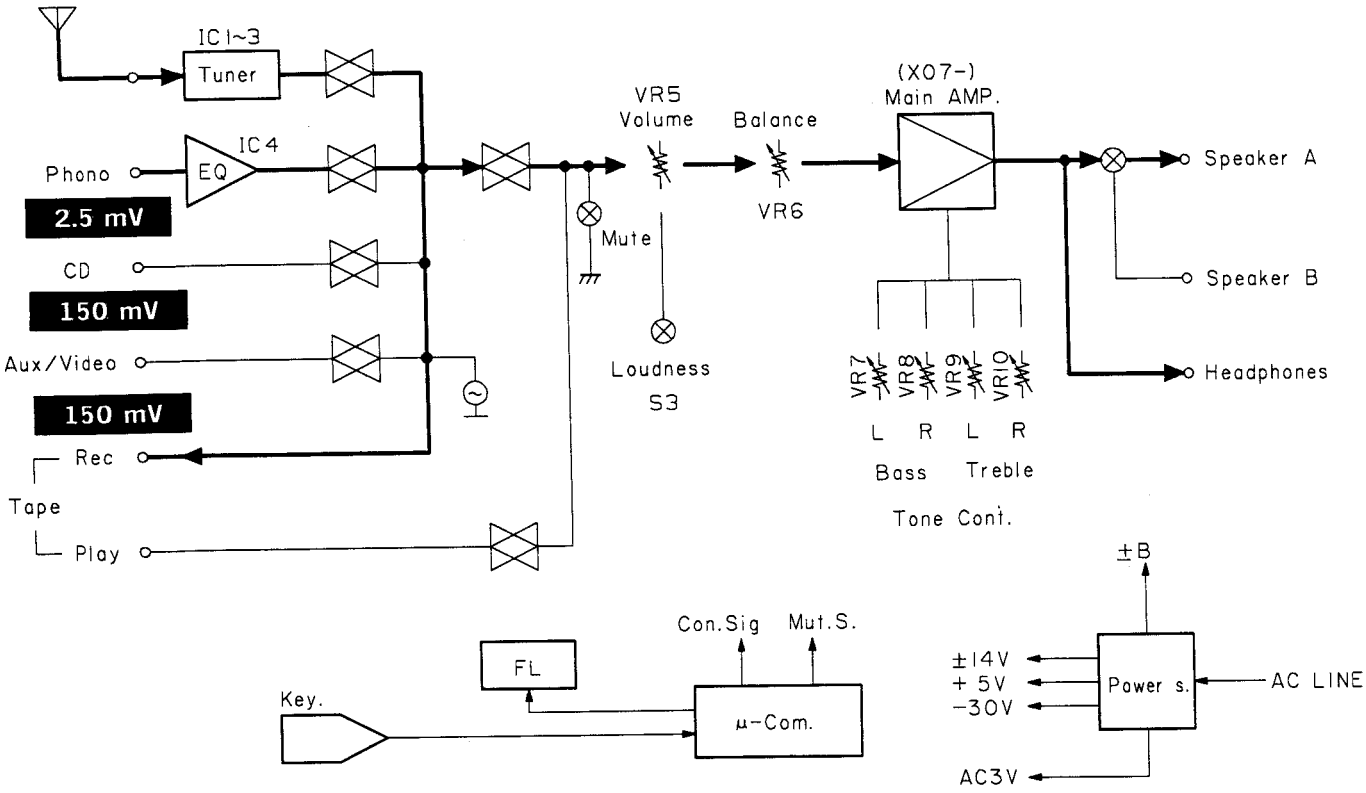
1. Remove the 3 screws fixing the front panel to the chassis (❶).
2. Disengage the 2 claws of the sub panel from the chassis (❷).
3. Remove the front panel together with the sub panel in the direction of the arrow (❸).
4. Pull out the 2 knobs of the VOLUME and BALANCE from the shafts, and remove the hex. nut from the VOLUME shaft (❹).
5. When installing the front panel, pay attention to the mounting position related to the chassis (❺).



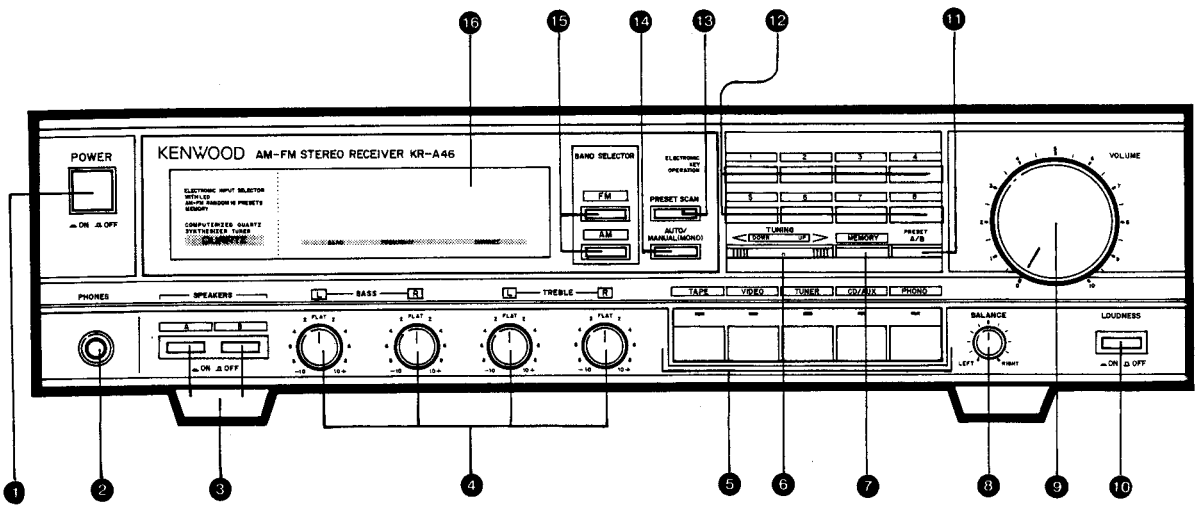
6. Remove the 3 screws fixing the Receiver Unit (X14-2180-10) (B/8) to the sub panel (❻).
7. Remove the Receiver Unit (X14-) (B/8) in the direction of the arrow (❼).
8. Remove the screw fixing the Receiver Unit (X14-) (H/8) to the sub panel (❽).
9. Remove the Receiver Unit (X14-) (H/8) in the direction of the arrow (❾).
10. Remove the 5 screws fixing the Receiver Unit (X14-) (G/8) to the sub panel (❿).
11. Disengage the 4 claws (upper side: 2, lower side: 2) of the sub panel which retain the Receiver Unit (X14-) (G/8) (⓫).
12. Remove the Receiver Unit (X14-) (G/8) in the direction of the arrow (⓬).
13. Remove the 2 screws fixing the multiple push switch (S4) to the sub panel (⓭).
14. Remove the multiple push switch (S4) together with the Receiver Unit (X14-) (C/8) in the direction of the arrow (⓮).



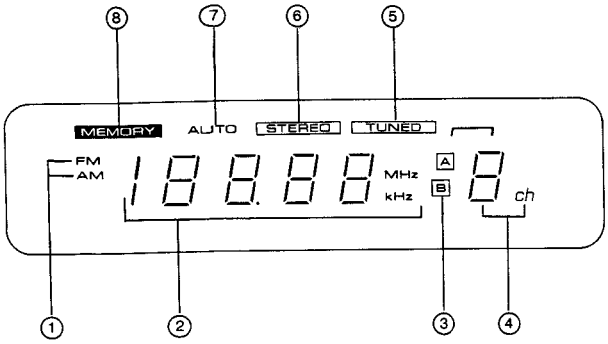
BLOCK & LEVEL DIAGRAM



CONTROLS, INDICATORS AND CONNECTORS



1. POWER switch
2. PHONES jack
3. SPEAKERS A and B switches
4. Tone controls
5. Input selectors
6. TUNING key
7. MEMORY key
8. BALANCE control
9. VOLUME control
10. LOUDNESS switch
11. PRESET A/B selector switch
12. Preset channel keys
13. PRESET SCAN key
14. AUTO/MANUAL (MONO) switch
15. BAND SELECTOR switches
16. Digital frequency counter and channel display



① **Band indicators**
② **Frequency display**
③ **Preset A/B selector indicators**
④ **Preset channel indicators**
⑤ **TUNED indicator**
⑥ **STEREO indicator**
⑦ **AUTO indicator**
⑧ **MEMORY indicator**

CIRCUIT DESCRIPTION

Function of components

Receiver unit (X14-2180-10)

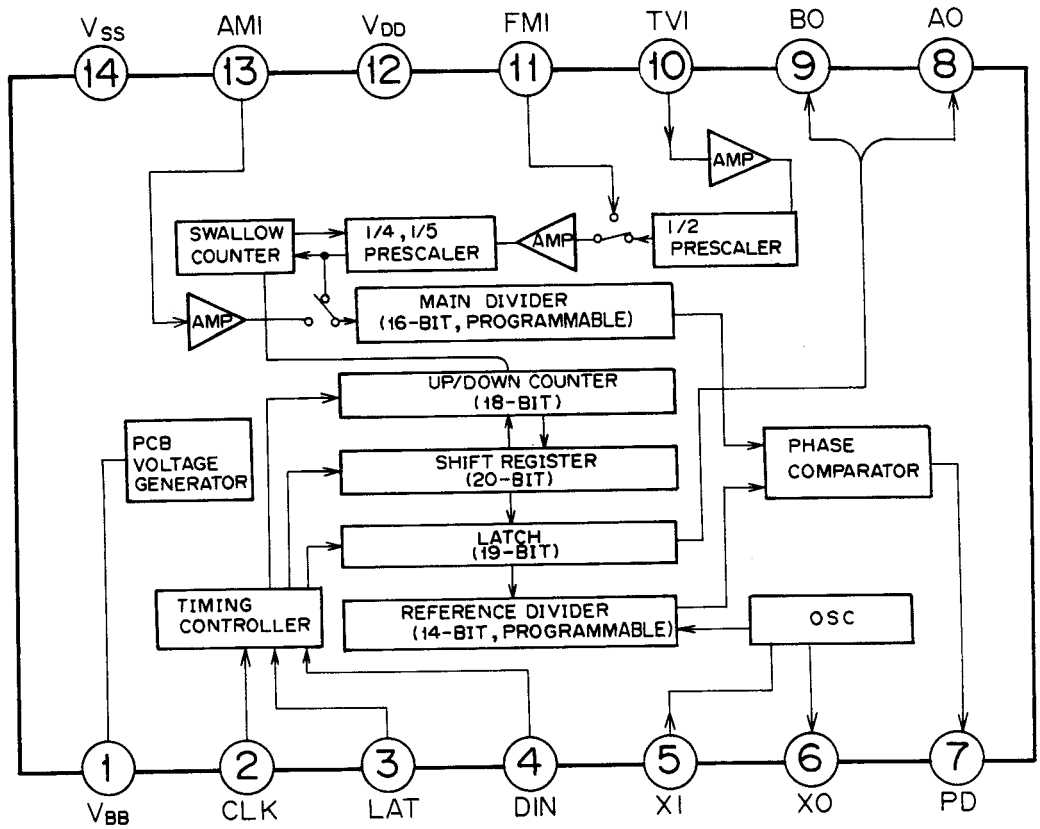
Components	Use/Function	Operation/Condition/Interchangeability
Q1	FM IF amp	
Q2	Buffer amp	
Q3, 4	L.P.F.	Tuning voltage.
Q5, 6	FM +B control	
Q7, 8	AM +B control	
Q9, 10	Temperature compensation	
Q11 ~ 14	Power transistor	Darlington circuit.
Q15 ~ 18	Muting	
Q19	Muting control	
Q20	Indication driver	STEREO display.
Q21	Indication driver	TUNED display.
Q22	Channel space selection	On: 9kHz, 50kHz, OFF: 10kHz, 100kHz.
Q23	LED driver	For phono.
Q24, 25	Constant voltage circuit	+14, darlington circuit.
Q26	Error amplifier	+14V.
Q27	Constant voltage circuit	+5V.
Q28	Interrupting control	+5V.
Q29	Constant voltage circuit	−24V.
IC1	IF detector	
IC2	PLL	
IC3	FM MPX	
IC4	Op amp	
IC5	Input selector	
IC6	Microcomputer	

Power amplifier unit (X07-2360-10)

Components	Use/Function	Operation/Condition/Interchangeability
Q1 ~ 4	Differential amp	First stage.
Q5 ~ 8	Differential amp	Class A amplifier.
Q9, 10	Regulated power supply	Current Miller.
Q11 ~ 14	Predriver	Darlington.
Q15, 16	Protection	Current detection.
Q17	Protection	Driver.
Q18	Muting control	Switching ON/OFF of positive power supply for the first stage.
Q19	Ripple filter	

IC2: CX7925B
Frequency Synthesizer PLL IC

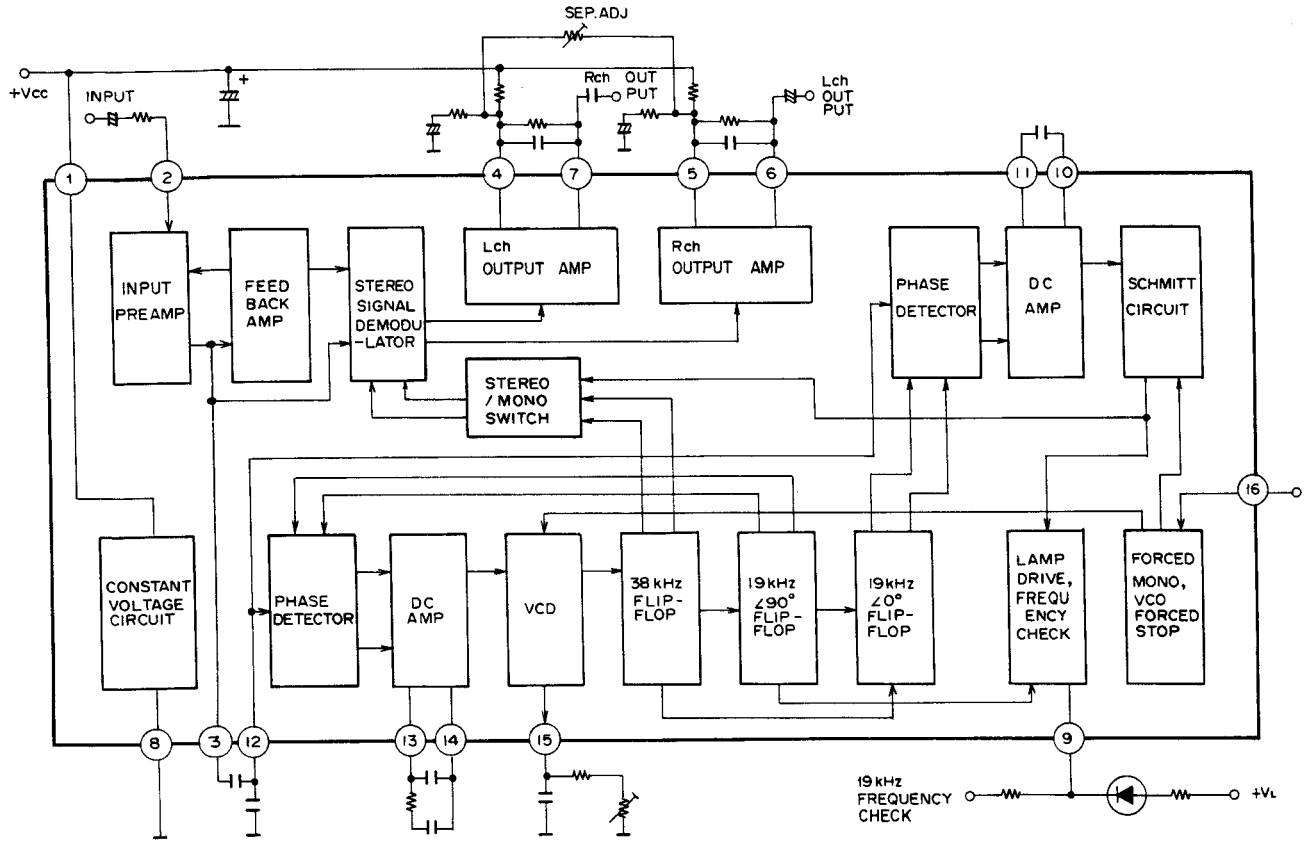
Block diagram and terminal configuration diagram



Terminal description

Terminal No.	Symbol	Terminal Description
1	V_{BB}	PCB terminal (Connect a 0.01 μF capacitor between the GND).
2	CLK	Input terminal for the clock used for 20-bit serial data input (Shifted at the rise).
3	LAT	Input terminal for the shift register input data latch signal (shifted at the rise) and, at the same time, for the Up/Down clock (status changed at the rise).
4	DIN	Data input terminal, also the Up/Down mode switching terminal (Up mode with "H" level, Down mode with "L" level).
5	XI	Connection terminals for the reference signal generator X'tal oscillator. (Max. 13 MHz, standard 4.0 MHz)
6	XO	
7	PD	Phase comparator output terminal (3-state).
8	AO	External control signal output terminal/Unlock signal output terminal (E/E MOS push-pull).
9	BO	External control signal output terminal/data check terminal (E/E MOS push-pull).
10	TVI	High-frequency signal input terminal (300 MHz or 350 MHz max.). With 1/2 prescaler.
11	FMI	High-frequency signal input terminal (150 MHz or 180 MHz max.).
12	V_{DD}	Power supply (+5V).
13	AMI	High-frequency signal input terminal (40 MHz or 50 MHz max.).
14	V_{SS}	Grounding terminal.

IC3: AN7470
FM MPX IC
Equivalent block diagram

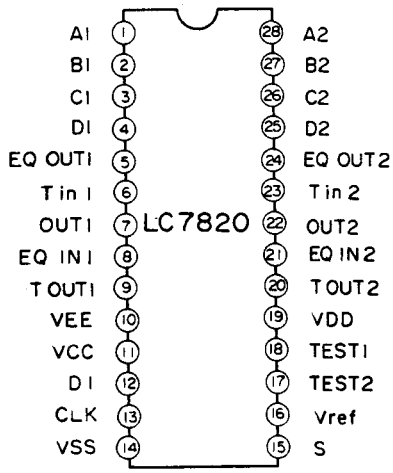


Terminal connection and functions

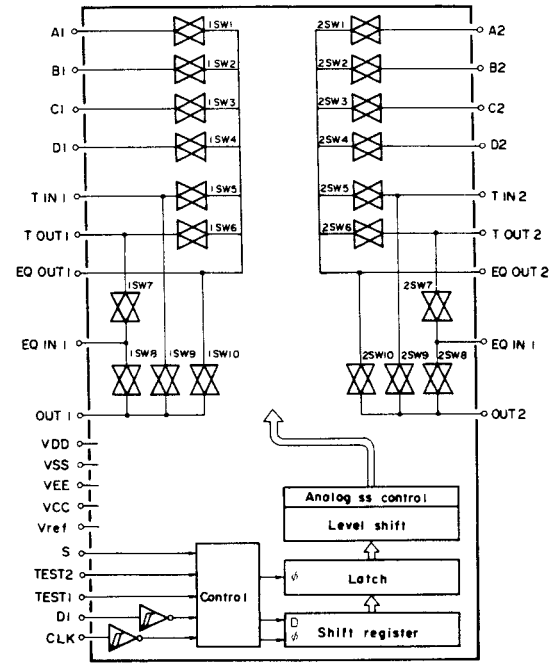
Terminal No.	Connection/Function
1	Supply voltage (+Vcc)
2	Stereo composite signal, input terminal
3	Input preamp, output terminal
4	L CH output amp, feedback terminal
5	R CH output amp, feedback terminal
6	R CH output amp, output terminal
7	L CH output amp, output terminal
8	Grounding terminal
9	Stereo display lamp drive and 19 kHz frequency check terminal
10	Stereo signal detector circuit, low-pass filter terminal
11	Stereo signal detector circuit, low-pass filter terminal
12	PLL circuit, input terminal
13	PLL circuit, low-pass filter terminal
14	PLL circuit, low-pass filter terminal
15	VCO freerun oscillation frequency adjustment terminal
16	Forced mono/forced VCO oscillation stop terminal

IC5: LC7820
Input selector IC

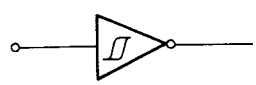
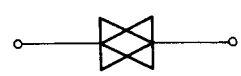
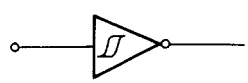
Pin connection



Equivalent block diagram



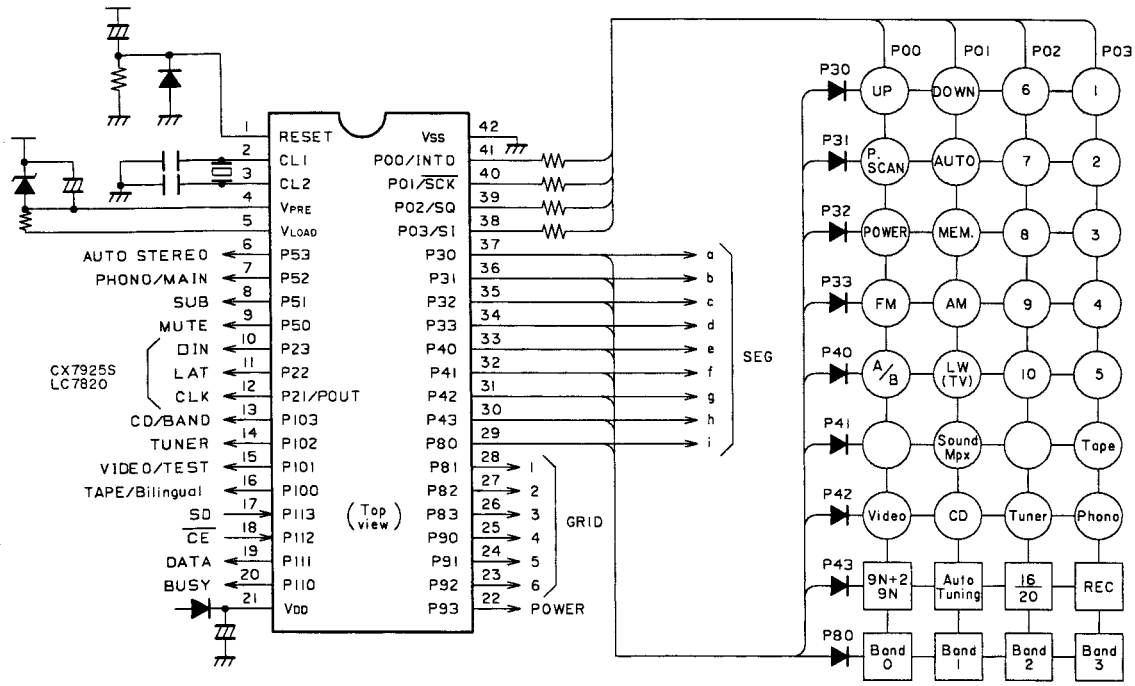
Explanation of terminals

Name	Pin no.	Pin type	Function
V_{DD}	19		Power supply pin, +18V-type. Power supply for audio signal.
Vref	16		Power supply pin, V_{DD} 5V-type. For internal logic drive.
V_{SS}	14		Power supply pin, 0V.
V_{EE}	10		Power supply pin, −18V-type. Power supply for audio signal.
V_{CC}	11		Power supply pin, +5V-type. For input logic.
D1	12		● Input pin for data from CPU. ● Schumitt inverter type.
CLK	13		● Input pin for CLK signal from CPU. ● Schumitt inverter type.
A 1, 2 B 1, 2 C 1, 2 D 1, 2 T in 1, 2 EQin 1, 2	1, 28 2, 27 3, 26 4, 25 6, 23 8, 21	1, 2SWn  A 1, 2 B 1, 2 C 1, 2 D 1, 2	Audio signal input pin. Simultaneous operation in 1SWn, 2SWn.
OUT 1, 2 T out 1, 2 EQ out 1, 2	7, 22 9, 20 5, 24	T out 1, 2 EQ out 1, 2 OUT 1, 2	Audio signal output pin.
S	15		Select pin when two ICs are used.

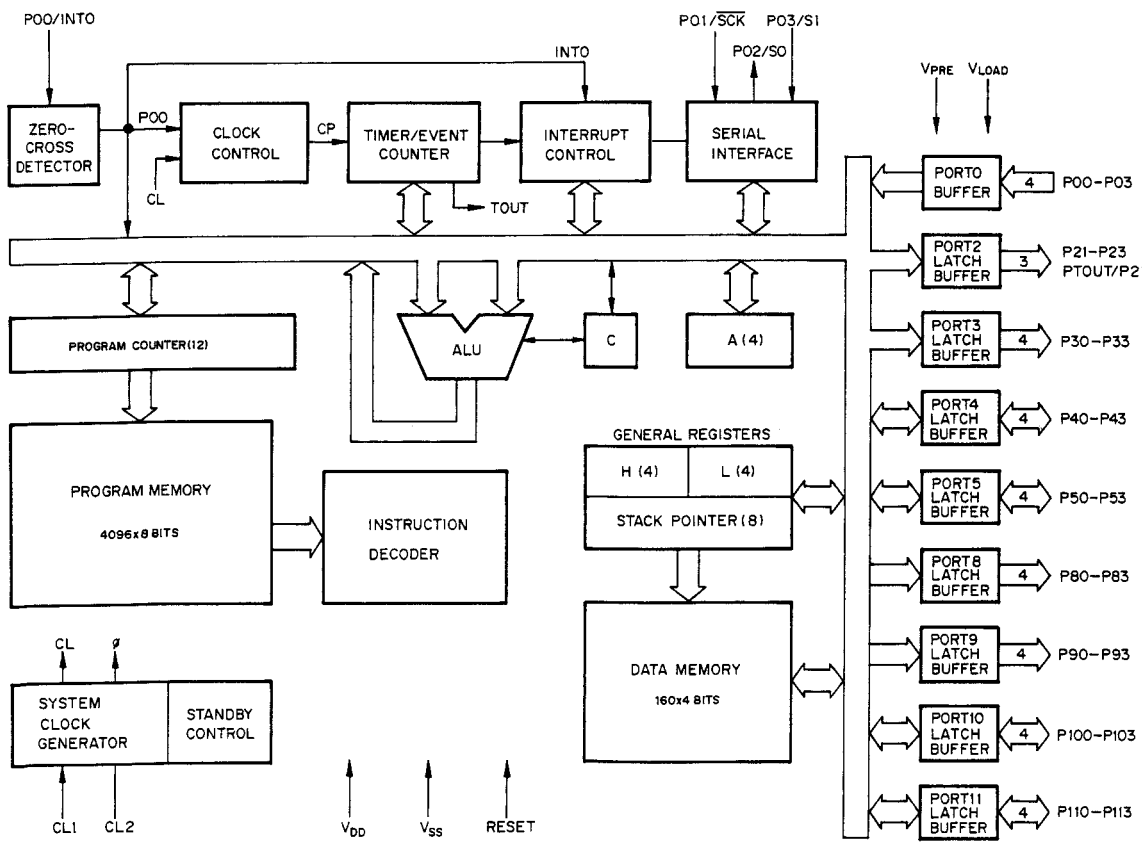
S	key code
0	7D2
1	7D3

IC6: μPD 7538AC-041
Microprocessor IC

Terminal connection diagram & key matrix connection



Block diagram



Function of the diode switch

1. Models for each designated area and function setting switches

Model for designated area	Set switch				BAND	Receiving frequency range	Channel spacing	Reference frequency	Middle frequency
	Band 3	Band 2	Band 1	Band 0					
K	1	0	0	0	FM	87.5 ~ 108 MHz	100 kHz	50 kHz	10.7 MHz
					AM	530 ~ 1610 MHz	10 kHz	10 kHz	450 kHz
E	1	1	0	1	FM	87.5 ~ 108 MHz	50 kHz	50 kHz	10.7 MHz
					MW	531 ~ 1602 kHz	9 kHz	9 kHz	450 kHz
					LW	153 ~ 281 kHz	1 kHz	1 kHz	450 kHz
M	1	1/0	0	0	FM AM	K type or E type (without LW)			

Band 3 H Overseas
L Domestic (Japan)
Band 2 H FMch space 50 kHz & AMch space 9 kHz
L FMch space 100 kHz & AMch space 10 kHz
Band 1 H Without auto tuning function only for LW broadcast
Band 0 H With LW: Indication (FM, MW, LW)
L Without LW: Indication (FM, AM)
LW key is not accepted.

2. Stop frequency select switch for auto tuning in LW reception
This switch is used to set the frequency which intakes the SD signal in LW band reception. For both manual and auto tuning, the tuning frequency is changed up or down in 1 kHz step, however, in auto tuning mode, the receiving frequency stops at the following frequency selected by this switch.

● Setting of this switch can be changed without resetting (unplugging/plugging the AC cord.)

9N+2 /9N	Frequency range	Channel spacing	Reference frequency	Middle frequency	Stop frequency
1	153 ~ 281 kHz	1 kHz	1 kHz	450 kHz	155, 164 ..... 272, 281 kHz
0	153 ~ 281 kHz	1 kHz	1 kHz	450 kHz	153, 162 ..... 270, 279 kHz

3. Auto tuning

Auto tuning	Auto tuning function	Auto/Mono KEY
1	Not available	Mono/Stereo function only
0	Available	This key is also used as the Auto/Manual tuning mode key.

4. Others

Set switch	Function
0	Preset 16
1	Preset 20
0	KT-56
1	KR-A46

Port allocation

Port		Pin No.	I/O Mode	Active Mode	Function
P0	0	41	I	H	Key return signal input
	1	40	I	H	Key return signal input
	2	39	I	H	Key return signal input
	3	38	I	H	Key return signal input
P2	1	12	O	H	PLL IC (CX7925B) Function SW (LC7820) Data output
	2	11	O	H	PLL IC (CX7925B) LAT output
	3	10	O	H	PLL IC (CX7925B) Function SW (LC7820) CLK output
P3	0	37	O	H	Key strobe signal output, FL display segment output: a
	1	36	O	H	Key strobe signal output, FL display segment output: b
	2	35	O	H	Key strobe signal output, FL display segment output: c
	3	34	O	H	Key strobe signal output, FL display segment output: d
P4	0	33	O	H	Key strobe signal output, FL display segment output: e
	1	32	O	H	Key strobe signal output, FL display segment output: f
	2	31	O	H	Key strobe signal output, FL display segment output: g
	3	30	O	H	Key strobe signal output, FL display segment output: h
P8	0	29	O	H	Key strobe signal output, FL display segment output: i
	1	28	O	H	FL display digit control pin: GRID 1
	2	27	O	H	FL display digit control pin: GRID 2
	3	26	O	H	FL display digit control pin: GRID 3
VDD		21	—	—	Power supply input pin (5V)
VSS		42	—	—	GND
P9	0	25	O	H	FL display digit control pin: GRID 4
	1	24	O	H	FL display digit control pin: GRID 5
	2	23	O	H	FL display digit control pin: GRID 6
	3	22	O	H	Power pin
P10	0	16	O	H	Input port: TV mode "Bilingual" pin (H) Output port: Receiver selector "TAPE"
	1	15	O	H	Input port: TEST pin (H) Output port: Receiver selector "VIDEO"
	2	14	O	H	Receiver selector "TUNER"
	3	13	O	H	Receiver design: Receiver selector "CD" System component design: Band data output (UHF: H)
P11	0	20	I/O	H	Serial signal BUSY pin
	1	19	I/O	H	Serial signal DATA pin
	2	18	I	L	Back up detection pin
	3	17	I	H	Station detection pin for auto tuning mode
P5	0	9	O	H	Muting signal
	1	8	O	H	TV SUB pin
	2	7	O	H	Receiver design: Receiver selector "PHONO" System component design: TV MAIN pin
	3	6	O	H	MONO/ST key to control Stereo (L) Mono (H)
RESET		1	I	H	Reset signal
CL1		2	—	—	Clock
CL2		3	—	—	Clock
VPRE		4	—	—	Power supply for FL display pre-driver
VLOAD		5	—	—	Power supply for FL display driver (−30V)

Key matrix layout

Input / Output	P00 (41)	P01 (40)	P02 (39)	P03 (38)
P30 (37)	UP	DOWN	6	1
P31 (36)	Preset Scan	AUTO MONO	7	2
P32 (35)	Power	Memory	8	3
P33 (34)	FM	AM	9	4
P40 (33)	A/B	LW (TV)	10	5
P41 (32)		Sound multiplex		Tape
P42 (31)	Video	CD	Tuner	Phono
P43 (30)	9N + 2 9N	*Auto tuning	*16 Preset 20 Preset	*Syscon Receiver
P80 (29)	*Band 0	*Band 1	*Band 2	*Band 3

- Values in brackets ( ) shows the pin number of microcomputer.
- Items with an asterisk (*) shows the diode switch. Others are momentary switches.
- LW (9N+2/9N) is the slide switch on the rear panel.
- Key-intake is active high.

Test frequency

Type	Preset Ch	1	2	3	4	5	6	7	8
K	A	FM							
		87.5	89.1	98.0	106.0	108.0	87.5	87.5	87.5
	B	AM							
		530	630	990	1440	1610	87.5	87.5	87.5
E	A	FM					AM		
		87.5	89.1	98.0	106.0	108.0	531	630	990
	B	AM		LW					FM
		1440	1602	153	162	216	270	281	87.5

- Test mode set-up: :
  Set the test pin (P15) to high level, and invert it to low level after turning the power ON. (The entire FL display will light except for MEMORY.)

Tuner function

1. Manual tuning
   Each time the UP/DOWN key is pressed, the tuning frequency is varied one step higher or lower. When this key is kept pressed for more than 0.5 seconds, the frequency is changed up or down at approx. 128 msec/step (approx. 224 msec/step for TV reception) until the key is released.
2. Auto tuning
   When the AUTO/MONO switch is set to AUTO, pressing the UP/DOWN key starts auto tuning. The tuning frequency is changed up or down at approx. 128 msec/step (approx. 224 msec/step for TV reception) until the high-level signal is input to the SD pin. When the high-level signal is input, auto tuning operation stops.
3. Preset memory
   Up to 16 or 20 frequencies (the maximum number of preset stations is set by the diode switch) can be preset randomly for FM, MW (AM) and LW (TV) stations.
   a) How to preset
   When the MEMORY key is pressed, the "MEMORY" indicator lights and the unit is set to the write-enable status. Writing to memory is possible for approx. 5 seconds after the MEMORY key is pressed. During this time, pressing any of the numeric key (1 – 10) will write the currently-received frequency into memory corresponding to the key pressed.
   b) How to recall
   When the tuner functions, pressing any of the preset keys will recall the stored contents corresponding to the key pressed.
4. Preset scan
   When the PRESET SCAN key is pressed, the SD pin goes high level. A preset channel is received for 5 seconds, then the receiving frequency is changed to the next preset channel. When the SD pin is low level, the receiving channel is changed to the next preset channel after one second.
   a) Key processing during scanning
   - Preset key: Stops the scanning operation and receives the frequency of the designated preset channel.
   - UP/DOWN key: Stops the scanning operation and processes the UP/DOWN function.

Function of tact switches

<table>
<tr><th>Name</th><th>Function</th></tr>
<tr><td>POWER</td><td>Power ON/OFF key. Each time this key is pressed, the Power pin is inverted. When the POWER switch is turned ON, the Power pin goes high level and the last channel (which is received when the power switch is turned off) is recalled. When the POWER switch is turned OFF, the Power pin goes low level and no indication will be displayed.</td></tr>
<tr><td>FM
AM (MW)
LW (TV)</td><td>Band select key for FM, AM (MW) and LW (TV). The reference data and the program data corresponding to the selected band will be transmitted to the PLL IC. However, if the band which is the same as that currently selected is selected, the command is not accepted.</td></tr>
<tr><td>UP
DOWN</td><td>Frequency up/down key.
● Auto tuning
When this key is pressed, the frequency is changing to the higher or lower scale at approx. 128 msec/step in the square mode. When the high-level signal is input to the SD pin, auto tuning operation is stopped and that frequency is received.
● Manual tuning
Each time this key is pressed, the frequency is changed up/down by one step (channel spacing). When it is kept pressed for more than 0.5 seconds, the frequency is changed at approx. 128 msec/step until the key is released.</td></tr>
<tr><td>Numeric keys (1 – 8)
(numeric keys (1 – 10) for 20-memory model)
MEMORY</td><td>● Write key (during Memory indicator is lit).
During approx. 5 seconds after the MEMORY key is pressed, pressing any of the numeric keys 1 – 8 (or 1 – 10) will write the frequency and the band which are currently received into the memory corresponding to the key pressed.
● Recall (when Memory indicator is not lit)
When any of the numeric keys 1 – 8 (or 1 – 10) is pressed, the memorized contents (band and frequency) corresponding to the key pressed will be recalled. When the VDD signal is initially input, the lowest frequency in the preset memories will be recalled for each band.</td></tr>
<tr><td>AUTO</td><td>Auto/Mono select key for FM broadcast.
Each time this key is pressed, the FM reception mode alternates between Auto and Mono. The Auto indicator lights and the Auto/Mono pin is inverted.
● When auto tuning is available, this key is also used for the auto/manual tuning mode select key.
● When this key is pressed during auto tuning, auto tuning operation stops and the manual tuning mode resumes.</td></tr>
<tr><td>Preset Scan</td><td>When this key is pressed, the preset channel (1 – 8 or 1 – 10) is scanned sequentially. When the receiving frequency is stored in memory, its contents (frequency and band) is recalled and received for approx. 5 seconds, then the next channel is received. When the receiving frequency is not stored in memory, the next channel is received after 1 second.</td></tr>
<tr><td>MAIN
SUB</td><td>Sub Audio Program (bilingual audio channel) mode select key for TV broadcast (MAIN/SUB/BOTH). Each time the key is pressed, the SAP mode is changed in the order MAIN → SUB → BOTH, then MAIN resumes.
The indication and the pin status for each mode are as follows:
<table>
<tr><th>Mode</th><th>Indication</th><th>Port (Main)</th><th>Port (Sub)</th></tr>
<tr><td>MAIN</td><td>MAIN</td><td>H</td><td>L</td></tr>
<tr><td>SUB</td><td>SUB</td><td>L</td><td>L</td></tr>
<tr><td>BOTH</td><td>MAIN SUB</td><td>L</td><td>H</td></tr>
</table>
This key is effective only when the band is set to the TV position. When set to another position, the MAIN or SUB indication will go off.</td></tr>
</table>

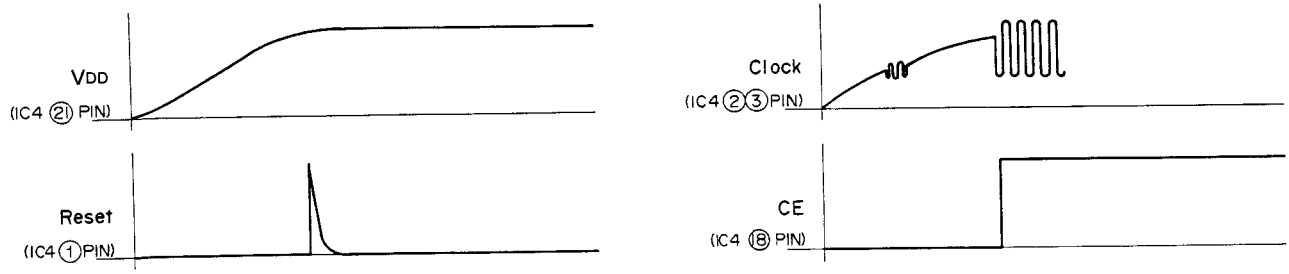
Name	Function
A/B	Each time the key is pressed, the preset group is alternated between A preset (1 – 8 or 1 – 10) and B preset (1 – 8 or 1 – 10) for recalling or storing. When pressed in the memory write mode, the writing time is set to 5 seconds after pressing the key.
TUNER CD PHONO VIDEO	Used only when the unit is set to the receiver mode. By pressing any of these select keys, the data is transmitted to the Selector IC and the input source is changed. ● Keys related with the Tuner (except for the Preset and Band keys) are not accepted other than when the input selector is set to TUNER. ● When any input source other than TUNER is selected, pressing the Band key or Preset key will change the selector to TUNER. ● When the input selector which is the same as the current source is selected, muting does not function.
TAPE	Tape monitor key. ● When pressed, the input source indicator LED (TUNER, CD, PHONO or VIDEO) is not changed but the Selector IC is changed. ● When the Preset Scan or Frequency Scan is engaged with the selector TUNER selected, pressing this key does not stop the scanning operation.

Clear function of microprocessor IC6

To reset the microprocessor IC4, reconnect the power cord while pressing the MEMORY button.

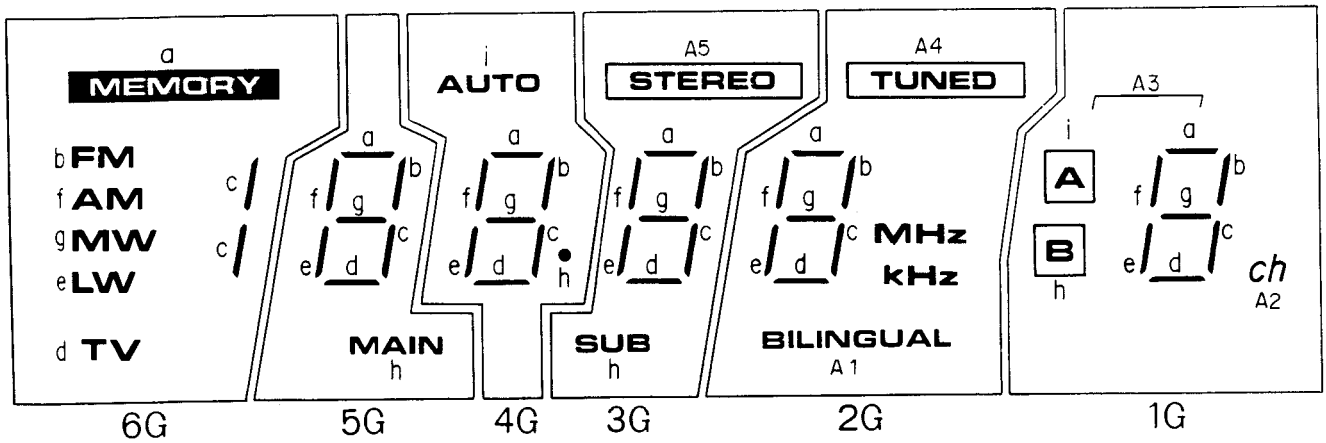
Operation of microprocessor IC6 at power ON

When voltage VDD at pin ㉑ (power supply) of IC4 is rises at power ON and the reset signal at pin ❶ differentiated by CE signal (Chip Enable signal) at pin ⑱ rises to half of VDD, the clock starts. When the reset signal lowers to half of the VDD, the microprocessor starts operating and the unit is set to normal operation mode.



Fluorescent indicator tube FL1: FIP8BRM7A (X14-2180-10)

Terminal connection



Terminal No. / Electrode	1 F	2 F	3 6G	4 NP	5 NP	6 6G	7 P(A5)	8 P(A4)	9 5G	10 P(A3)	11 P(A2)	12 4G	13 P(A1)	14 3G	15 P(i)					
Terminal No. / Electrode						16 P(h)	17 P(g)	18 2G	19 P(f)	20 P(e)	21 2G	22 P(d)	23 1G	24 P(c)	25 P(b)	26 P(a)	27 1G	28 NP	29 F	30 F

Notes F: Filament P: Anode
G: Grid NP: No pin

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION		SELECTOR: FM					
1	DETECTOR	(A) 98.0MHz 1kHz, ±75kHz dev 60dBμ(ANT input)	Connect a DC voltmeter between TP2 and TP3.	AUTO or MONO 98.0MHz	L5 (X14-)	0V	(a)
2	VCO	(A) 98.0MHz 0 dev 100dBμ(ANT input)	Connect a frequency counter between TP6 and GND.	AUTO 98.0MHz	VR4 (X14-)	76.00kHz	(b)
3	SEPARATION (E Type)	(C) 98.0MHz Stereo signal 60dBμ(ANT input)	(B)	AUTO 98.0MHz	VR3 (X14-)	Minimum crosstalk.	
4	TUNING LEVEL	(A) 98.0MHz 0 dev 18dBμ(ANT input)300Ω 14dBμ(ANT input) 75Ω	(B)	AUTO or MONO 98.0MHz	VR1 (X14-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
AM SECTION		Keep the AM loop antenna installed. SELECTOR: AM					
(1)	BAND EDGE (Low)	–	Connect a DC voltmeter between TP7(GND) and TP8.	–	L3 (X14-)	1.5V	(c)
(2)	BAND EDGE (High)	–	Connect a DC voltmeter between TP7(GND) and TP8.	–	TC2 (X14-)	8.0V	(c)
		Repeat alignments (1) and (2) several times.					
(3)	RF ALIGNMENT (1)	(D) 600kHz 20dBμ(ANT input)	(B)	–	L2 (X14-)	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1400kHz 20dBμ(ANT input)	(B)	–	TC1 (X14-)	Maximum amplitude and symmetry of the oscilloscope display.	
		Repeat alignments (3) and (4) several times.					
(5)	IF TRANSFORMER	(D) 1000kHz 20dBμ(ANT input)	(B)	–	L6 (X14-)	Maximum amplitud and symmetry of the oscilloscope display.	
(6)	TUNING LEVEL	(D) 1000kHz 36dBμ(ANT input)	(B)	–	VR2 (X14-)	Adjust VR2 and stop at the point where FL1(TUNED) goes on.	
AUDIO SECTION							
[1]	IDLE CURRENT	–	(E) Connect a DC voltmeter across CP1(L) CP2(R)	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)

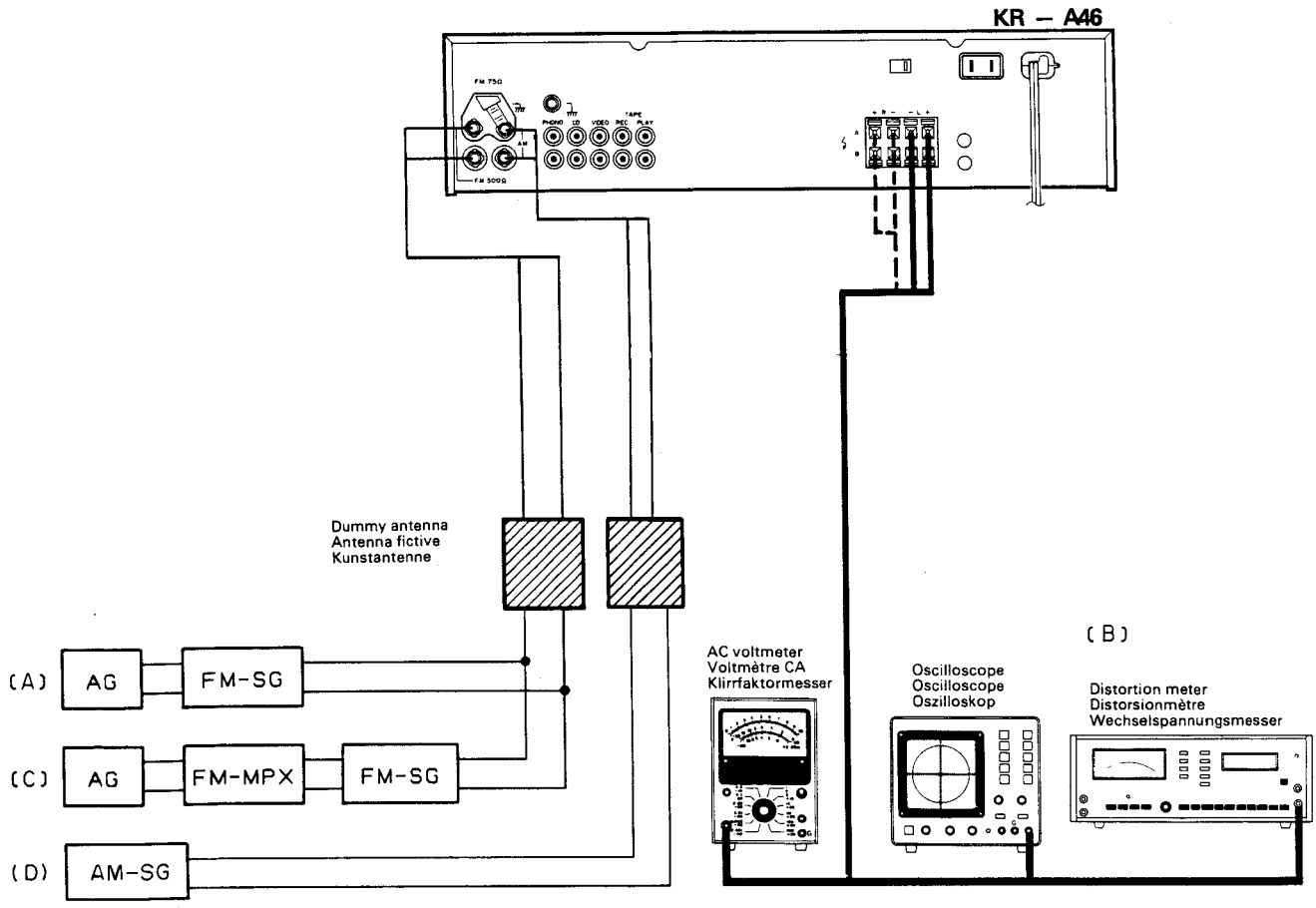
REGLAGE

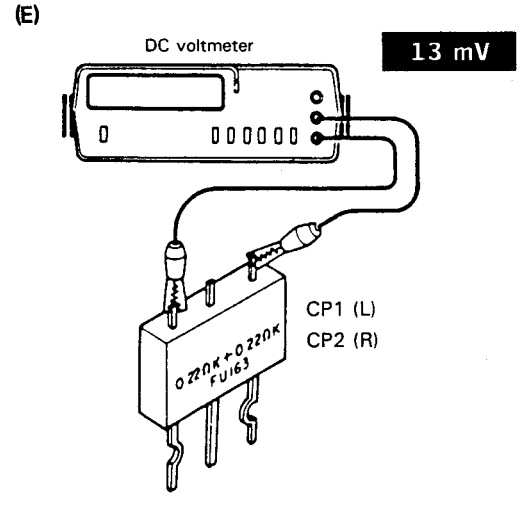
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF			SELECTEUR : FM				
1	DETECTEUR	(A) 98,0MHz 1kHz.±75kHz dév 60dBμ(Entrée ANT)	Relier un voltmètre CC entre les TP2 et TP3.	AUTO ou MONO 98,0MHz	L5 (X14-)	0V	(a)
2	OSCILLATEUR CONTROLE PAR LA TENSION	(A) 98,0MHz 0 dév 100dBμ(Entrée ANT)	Relier un compteur de fréquence entre les TP6 et GND.	AUTO 98,0MHz	VR4 (X14-)	76,00kHz	(b)
3	SEPARATION (E type)	(C) 98,0MHz Signal stéréo 60dBμ(Entrée ANT)	(B)	AUTO 98,0MHz	VR3 (X14-)	Diaphonie minimale.	
4	NIVEAU D'ACCORDER	(A) 98,0MHz 0 dév 18dBμ(Entrée ANT) 300Ω 14dBμ(Entrée ANT) 75Ω	–	AUTO ou MONO 98,0MHz	VR1 (X14-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le FL1(TUNED)s'allume.	
SECTION MA			Laisser l'antenne bouche MA installée. SELECTEUR: AM				
(1)	BORD DE BANDE (Bas)	–	Relier un voltmètre entre les TP7(GND) et TP8.	–	L3 (X14-)	1,5V	(c)
(2)	BORD DE BANDE (Haut)	–	Relier un voltmètre entre les TP7(GND) et TP8.	–	TC2 (X14-)	8,0V	(c)
			Répéter les points (1) et (2) plusieurs fois.				
(3)	ALIGNEMENT H.T. (1)	(D) 600kHz 20dBμ(Entrée ANT)	(B)	–	L2 (X14-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT H.T. (2)	(D) 1400kHz 20dBμ(Entrée ANT)	(B)	–	TC1 (X14-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
			Répéter les points (3) et (4) plusieurs fois.				
(5)	TRANSFORMATEUR F.I.	(D) 1000kHz 20dBμ(Entrée ANT)	(B)	–	L6 (X14-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(6)	NIVEAU D'ACCORDER	(A) 1000kHz 36dBμ(Entrée ANT)	–	–	VR2 (X14-)	Ajuster VR2 et arrêter le mouvement de VR2 au moment où le FL1(TUNED)s'allume.	
SECTION AUDIO							
[1]	COURANA DE POLARISATION	–	(E) Connecter un voltmètre CC sur CP1(L) CP2(R)	Volume: 0	VR1(G) VR2(D) (X07-)	13mV	(d)

ABGIEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
UKW-EMPFANGSABTEILUNG			WÄHLER: FM				
1	DETEKTOR	(A) 98,0MHz 1kHz,±75kHz Hub 60dBμ(ANT-Eingang)	Einen Gleichspannungs-messer zwischen TP2 und TP3 anschließen.	AUTO oder MONO 98,0MHz	L5 (X14-)	0V	(a)
2	SPANNUNGS-GEREGELTER OSZILLATOR	(A) 98,0MHz 0 Hub 100dBμ(ANT-Eingang)	Einen Frequenzzähler zwischen TP6 und GND anschließen.	AUTO 98,0MHz	VR4 (X14-)	76,00kHz	(b)
3	STEREO KANAL TRENNUNG (E Type)	(C) 98,0MHz Stereo Signal 60dBμ(ANT-Eingang)	(B)	AUTO 98,0MHz	VR3 (X14-)	Minimal Klirrfaktor.	
4	ABSTIMM PEGEL	(A) 98,0MHz 0 Hub 18dBμ(ANT-Eingang) 300Ω 14dBμ(ANT-Eingang) 75Ω	–	AUTO oder MONO 98,0MHz	VR1 (X14-)	Den Pegel wiederstand aufdrehen, und dem VR1 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
MW-EMPFANGSABTEILUNG			Die MW-Rahmenantenne angebracht lassen.	WÄHLER: AM			
(1)	BANDKANTE (Niedrig)	–	Einen Gleichspannungs-messer zwischen TP7(GND) und TP8 anschließen.	–	L3 (X14-)	1,5V	(c)
(2)	BANDKANTE (Hoch)	–	Einen Gleichspannungs-messer zwischen TP7(GND) und TP8 anschließen.	–	TC2 (X14-)	8,0V	(c)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 600kHz 20dBμ(ANT-Eingang)	(B)	–	L2 (X14-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1400kHz 20dBμ(ANT-Eingang)	(B)	–	TC1 (X14-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							
(5)	ZF-UBERTRAGER	(D) 1000kHz 20dBμ(ANT-Eingang)	(B)	–	L6 (X14-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(6)	ABSTIMM PEGEL	(A) 1000kHz 36dBμ(ANT-Eingang)	–	–	VR2 (X14-)	Den Pegel wiederstand aufdrehen, und dem VR2 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
AUDIO-ABTEILUNG							
[1]	LEERLAUFSTROM	–	(E) Einen Gleichspannungs-messer über CP1(L) CP2(R) anschließen.	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)

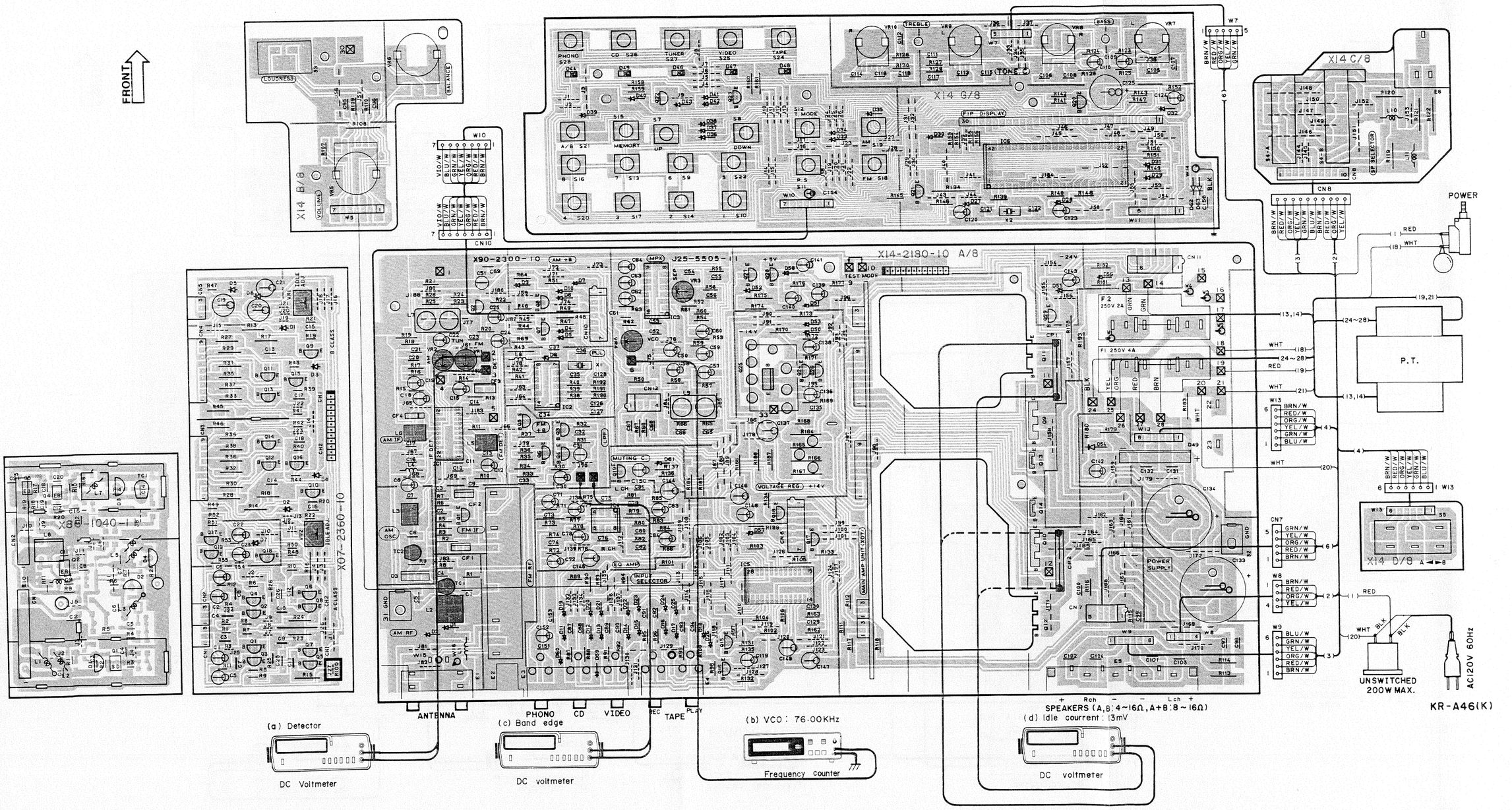
KR-A46


KR – A46
Dummy antenna
Antenna fictive
Kunstantenne
(A)
AG
FM-SG
(C)
AG
FM-MPX
FM-SG
(D)
AM-SG
AC voltmeter
Voltmètre CA
Klirrfaktormesser
(B)
Oscilloscope
Oscilloscope
Oszilloskop
Distortion meter
Distorsionmètre
Wechselspannungsmesser


(E)
DC voltmeter
13 mV
CP1 (L)
CP2 (R)

PC BOARD

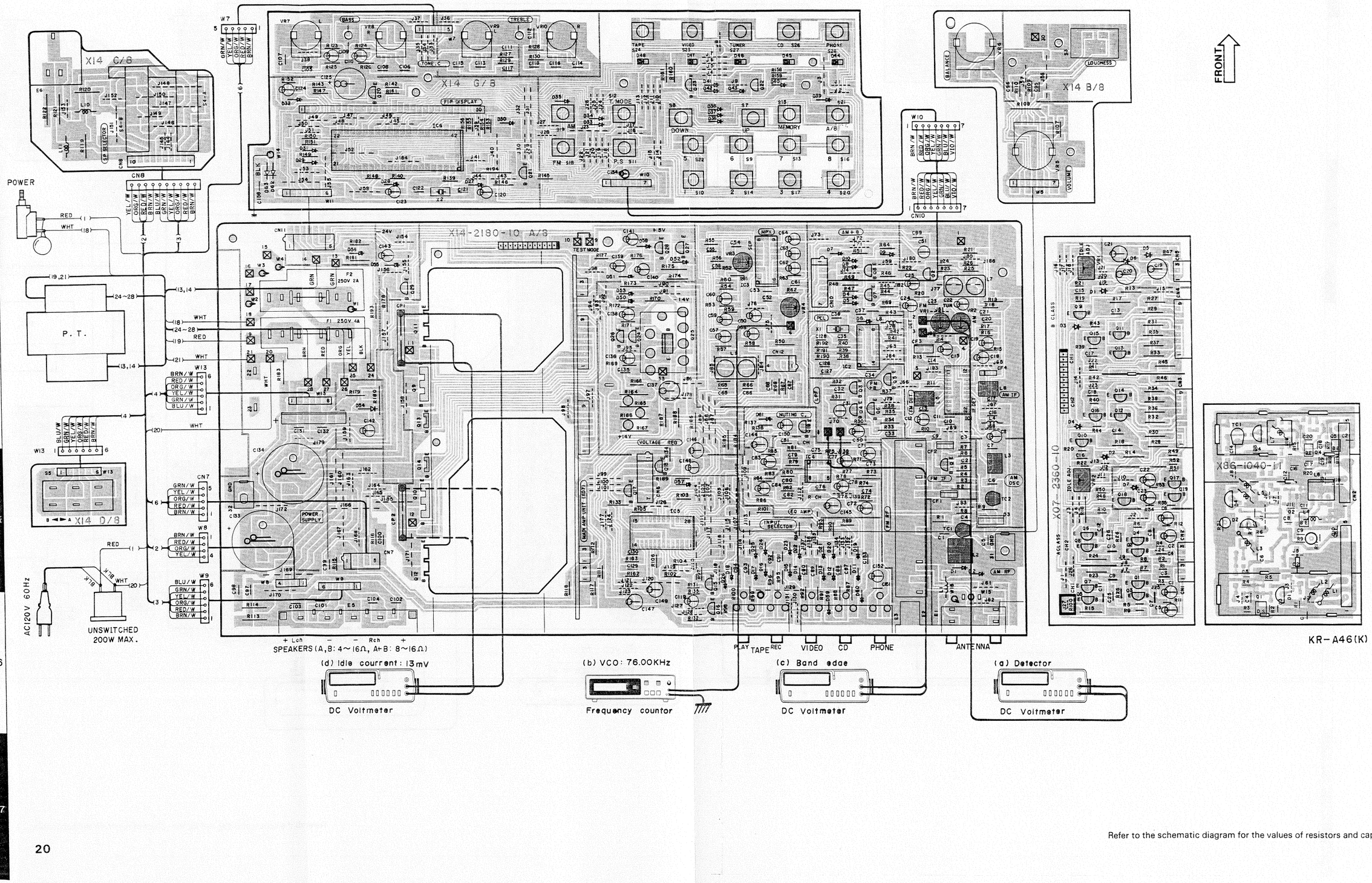
COMPONENT SIDE VIEW



Refer to the schematic diagram for the values of resistors and capacitors.

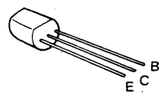
PC BOARD

FOIL SIDE VIEW

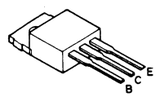


Refer to the schematic diagram for the values of resistors and capacitors.

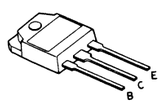
2SA1284
2SA733 (A)
2SA954
2SA992
2SC1845
2SC1923
2SC2003
2SC2878
2SC3244
2SC945 (A)



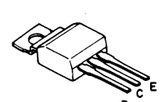
2SC2167



2SA1489



2SC3853

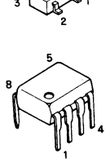


2SC2714

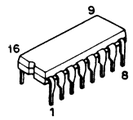
2SK302

3SK131

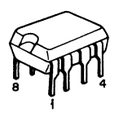
NJM4558D-A



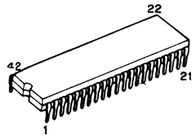
AN7470



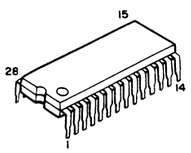
M5218P-A



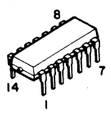
UPD7538AC-041



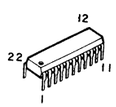
LC7820

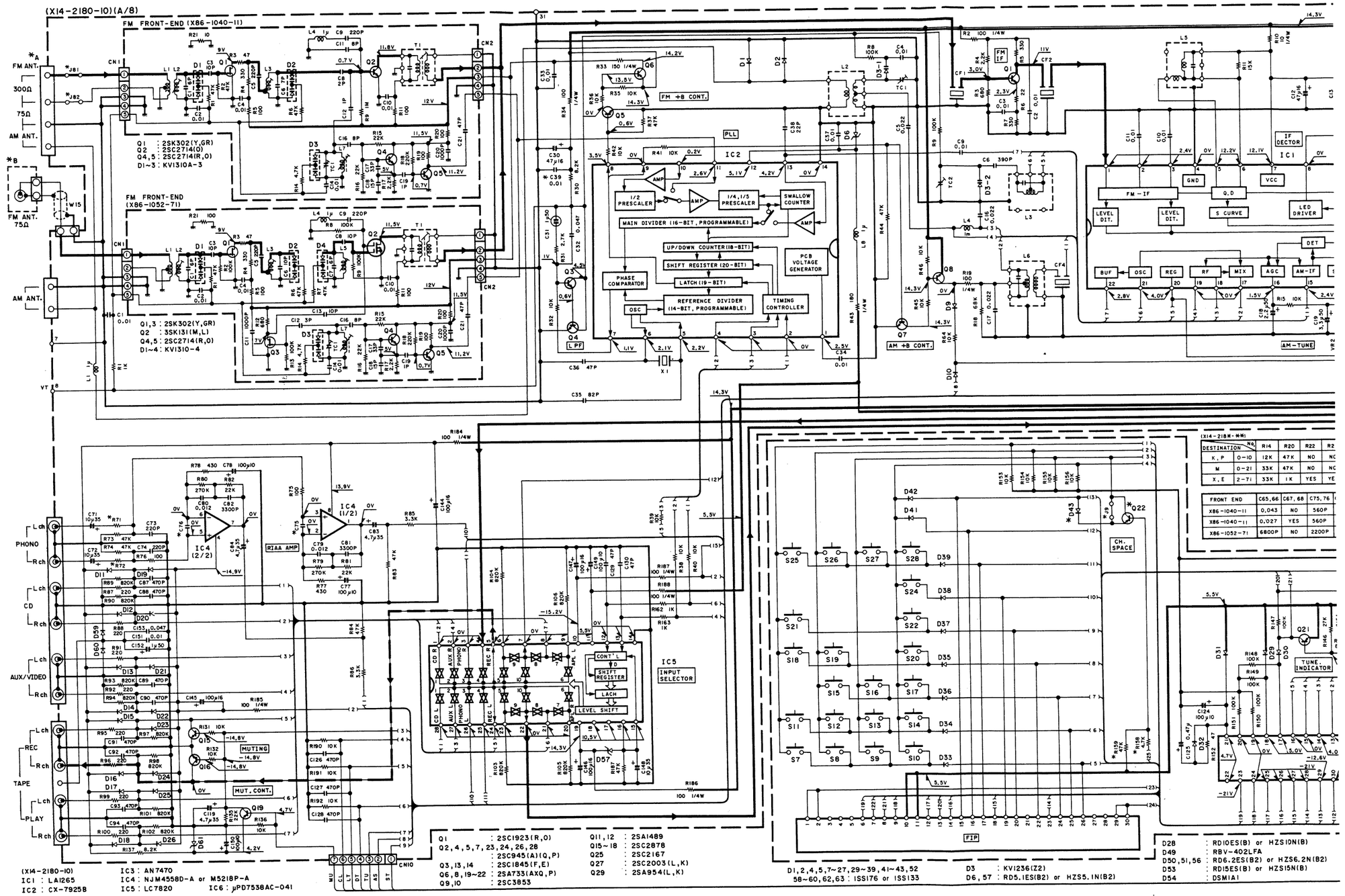


CX7925B



LA1265





(X14-2180-10)				
DESTINATION	N6	R14	R20	R22	R2
K, P	0~10	12K	47K	NO	NC
M	0~21	33K	47K	NO	NC
X, E	2~71	33K	1K	YES	YE

FRONT END	C65,66	C67, 68	C75, 76
X86-1040-11	0.043	NO	560P
X86-1040-11	0.027	YES	560P
X86-1052-71	6800P	NO	2200P

Q1 : 2SC1923(R,O)
Q2,4,5,7,23,24,26,28 : 2SC945(A)(Q,P)
Q3,13,14 : 2SC1845(F,E)
Q6,8,19~22 : 2SA733(AXQ,P)
Q9,10 : 2SC3853
Q11,12 : 2SA1489
Q15~18 : 2SC2878
Q25 : 2SC2167
Q27 : 2SC2003(L,K)
Q29 : 2SA954(L,K)

D1,2,4,5,7~27,29~39,41~43,52 58~60,62,63 : ISS176 or ISS133
D3 : KV1236(Z2)
D6, 57 : RD5.1ES(B2) or HZS5.1N(B2)
D28 : RD10ES(B) or HZS10N(B)
D49 : RBV-402LFA
D50,51,56 : RD6.2ES(B2) or HZS6.2N(B2)
D53 : RD15ES(B) or HZS15N(B)
D54 : DSM1A1

(X14-2180-**)																				
DESTINATION	No.	R14	R20	R22	R23	R24	R25	R26	R52	R59,60	R61	R65,66	R67,68	R71,72	R158	R159	R183	C25	C54	C55,56	C59,60	C39
K,P	0-10	12K	47K	NO	NO	NO	NO	J	YES	NO	NO	220K	NO	470	NO	NO	YES	NO	NO	150P	NO	NO
M	0-21	33K	47K	NO	NO	NO	NO	J	YES	NO	NO	220K	YES	470	YES	YES	NO	NO	NO	150P	NO	NO
X,E	2-71	53K	1K	YES	YES	YES	YES	47K	NO	YES	YES	3.9K	NO	1K	NO	NO	NO	YES	YES	1200P	YES	YES

FRONT END	C65,66	C67,68	C75,76	C101~104	D43	Q2	Q22	L7	L9	J1	J8	J9	J52	J55	J77	J81	J82	J84	J85	F1	F2	A	B	W11
X86-1040-11	0.043	NO	560P	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	4A	NO	YES	NO	6P
X86-1040-11	0.027	YES	560P	NO	YES	NO	NO	YES	NO	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	2A	YES	YES	NO	7P
X86-1052-71	6800P	NO	2200P	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	T2A	NO	NO	YES	6P

(X07-2360-10)				
DESTINATION	No.	R3,4	C7,8	R100
K,P,M	0-10	J	NO	J
X,E	2-71	YES	YES	270

(X07-2360-10)
Q1~4,17 : 2SA992(F,E)
Q5~8,15,16 : 2SC1845(F,E)
Q9,10 : 2SC992(F,E)
Q11,12 : 2SC3244
Q13,14 : 2SA1284
Q18,19 : 2SC945(A)(Q,P)

D1,2,7 : ISS176 or ISS133
D3~6 : ISS178 or ISS131

: RD10ES(B) or HZS10N(B)
: RBV-402LFA
1,56 : RD6.2ES(B2) or HZS6.2N(B2)
: RD15ES(B) or HZS15N(B)
: DSM1A1

D55 : RD24ES(B) or HZS24N(B)
D61 : RD4.7ES(B) or HZS4.7N(B)

(X14-2180-10)(G/8)

(X14-2180-10)(B/8)

(X14-2180-21)(F/8)

(X14-2180-10)(C/8)

(X14-2180-21)(E/8)

(X14-2180-10)(D/8)

(X07-2360-10)

(X,E)TYPE

(M)TYPE

SIGNAL LINE
GND LINE

KR-A46(K)

CAUTION: For continued safety, replace safety critical components only with manufacture's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before tha appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter during reception of the FM broadcast signal (with a signal strength of 60 dB at the ANT terminal). Values may vary slightly due to variations between individual instruments or/and units.

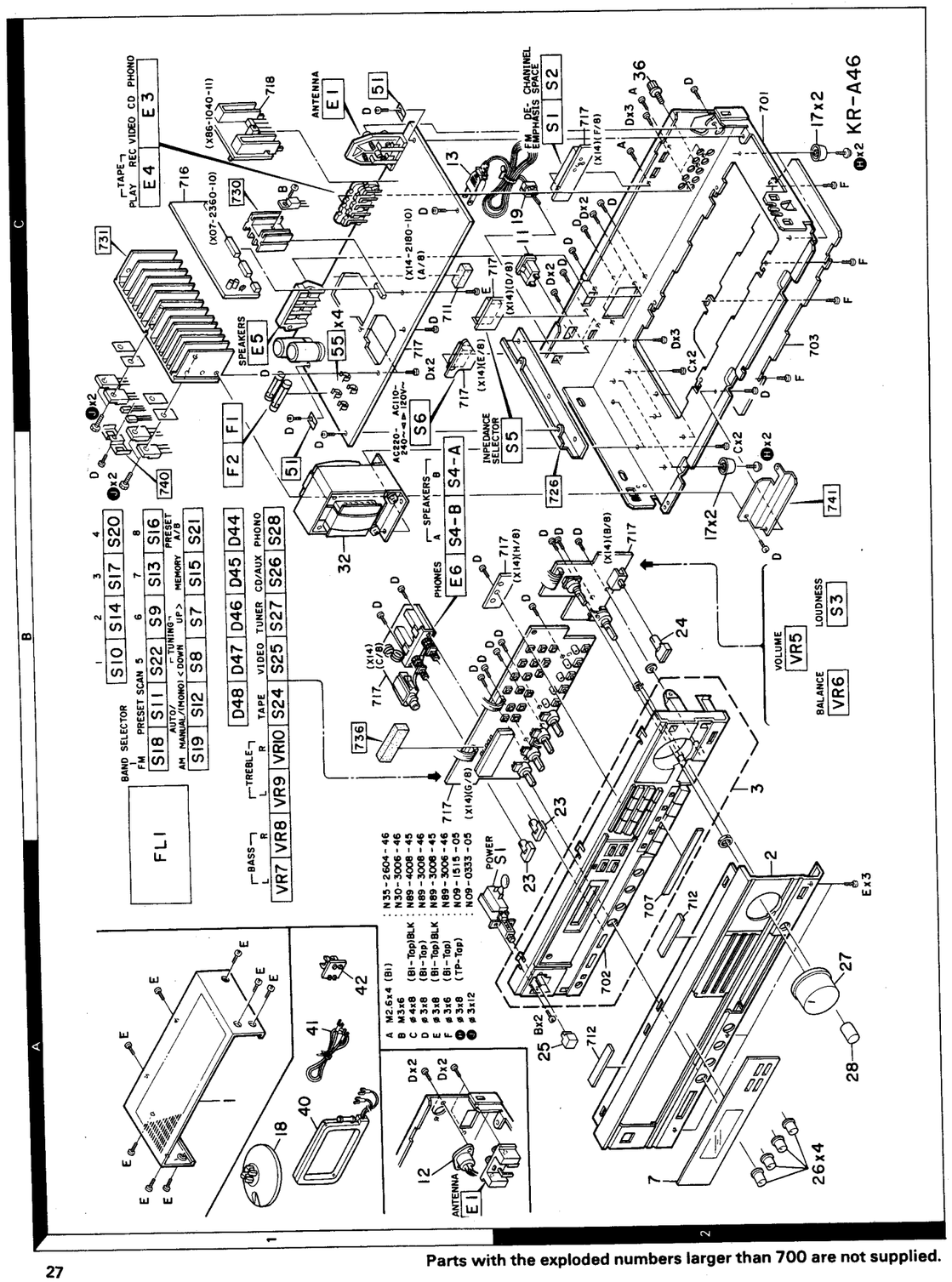
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance pendant la réception d'un signal de programme FM (avec une force de signal de 60 dB à la borne ANT). Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser bei Empfang eines UKW-Signals (mit einer Feldstärke von 60 dB am Antennenanschluß) gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

KR-A46

KENWOOD

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

× New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
			KR-A46			
1	1A		A01-1544-01	METALLIC CABINET		
2	2A	*	A20-5187-02	PANEL		
3	2B	*	A22-0684-02	SUB PANEL ASSY		
7	2A	*	B03-2267-03	DRESSING PLATE		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-		*	B50-6859-00	INSTRUCTION MANUAL(ENGLISH)	K	
-		*	B50-6860-00	INSTRUCTION MANUAL(ENG,FRE)	PMX	
-		*	B50-6861-00	INSTRUCTION MANUAL(E,F,SP,A)	M	
-		*	B50-6862-00	INSTRUCTION MANUAL(F,G,D)	E	
-			B58-0269-04	CAUTION CARD	K	
-			B58-0803-03	CAUTION CARD	E	
⚠ C1			C91-0023-05	CERAMIC 0.01UF AC250V	M	
⚠ C1			C91-0647-05	CERAMIC 0.01UF P	KPXE	
⚠ 11	2C		E03-0041-05	AC OUTLET	KPM	
12	1A		E04-0006-05	RF COAXIAL CABLE RECEPTACLE	XE	
⚠ 13	1C		E30-0459-05	AC POWER CORD	E	
⚠ 13	1C		E30-0812-05	AC POWER CORD	M	
⚠ 13	1C		E30-1341-05	AC POWER CORD	X	
⚠ 13	1C		E30-2209-05	AC POWER CORD	KP	
-		*	H01-7454-04	ITEM CARTON CASE		
-			H10-3400-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0223-04	PROTECTION BAG (750X350X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
17	2B,2C		J02-0170-04	FOOT		
18	1A	*	J19-2815-04	ANTENNA HOLDER		
⚠ 19	2C		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
23	2A,2B		K27-1304-04	KNOB (BUTTON) SPEAKERS		
24	2B	*	K27-1644-04	KNOB (BUTTON) LOUDNESS		
25	2A		K29-2001-04	KNOB ASSY(BUTTON)POWER		
26	2A		K29-2506-04	KNOB (BASS,TREBLE)		
27	2A	*	K29-2659-04	KNOB (VOLUME)		
28	2A	*	K29-2661-04	KNOB (BALANCE)		
⚠ 32	1B	*	L01-7661-05	POWER TRANSFORMER	K	
⚠ 32	1B	*	L01-7662-05	POWER TRANSFORMER	E	
⚠ 32	1B	*	L01-7665-05	POWER TRANSFORMER	M	
⚠ 32	1B	*	L01-7667-05	POWER TRANSFORMER	P	
⚠ 32	1B	*	L01-7668-05	POWER TRANSFORMER	X	
36	2C		N08-0128-35	BINDING POST (GND)		
H	2B,2C		N09-1515-05	TAPPING SCREW (Ø3X8)		
⚠ S1	2A		S40-1073-05	PUSH SWITCH (POWER)		
40	1A		T90-0104-25	LOOP ANTENNA		
41	1A		T90-0121-05	T TYPE ANTENNA		
42	1A		T90-0136-05	ANTENNA ADAPTOR	XE	

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POWER AMPLIFIER UNIT (X07-2360-10)						
C1 ,2			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C3 ,4			CC45FSL1H221J	CERAMIC 220PF J		
C5 ,6		*	CE04LW1A470M	ELECTRO 47UF 10WV		
C7 -12			CC45FSL1H680J	CERAMIC 68PF J	XE	
C9 -12			CC45FSL1H680J	CERAMIC 68PF J	KPM	
C13 ,14			CC45FSL1H221J	CERAMIC 220PF J		
C15 ,16			CK45FF1H103Z	CERAMIC 0.010UF Z		
C17 ,18			CK45FB1H222K	CERAMIC 2200PF K		
C19 ,20		*	CE04LW1H101M	ELECTRO 100UF 50WV		
C21		*	CE04LW1C101M	ELECTRO 100UF 16WV		
C22			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C23			CE04LW1V100M	ELECTRO 10UF 35WV		
C25 ,26			CC45FSL1H020C	CERAMIC 2.0PF C		
R13 ,14			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R17 ,18			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R23 ,24			RD14GB2E271J	FL-PROOF RD 270 J 1/4W		
R27 -30			RD14GB2E4R7J	FL-PROOF RD 4.7 J 1/4W		
R31 -34			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R35 -38			RD14GB2E2R2J	FL-PROOF RD 2.2 J 1/4W		
R45 ,46			RD14GB2E470J	FL-PROOF RD 47 J 1/4W		
VR1 ,2			R12-1070-05	TRIMMING POT.(1K)IDLE ADJ		
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
D3 -6			1SS131	DIODE		
D3 -6			1SS178	DIODE		
D7			1SS133	DIODE		
D7			1SS176	DIODE		
Q1 -4			2SA992(F,E)	TRANSISTOR		
Q5 -8			2SC1845(F,E)	TRANSISTOR		
Q9 ,10			2SA992(F,E)	TRANSISTOR		
Q11 ,12			2SC3244	TRANSISTOR		
Q13 ,14			2SA1284	TRANSISTOR		
Q15 ,16			2SC1845(F,E)	TRANSISTOR		
Q17			2SA992(F,E)	TRANSISTOR		
Q18 ,19			2SC945(A)(Q,P)	TRANSISTOR		
RECEIVER UNIT (X14-2180-10)						
D44 -48			B30-0431-05	LED(LN21CPH)		
C1 -4			CK45FF1H103Z	CERAMIC 0.010UF Z		
C5			CK45FF1H223Z	CERAMIC 0.022UF Z		
C6			CQ09FS1H391J	POLYSTY 390PF J		
C7			CK45FF1H103Z	CERAMIC 0.010UF Z		
C8			CE04LW1V100M	ELECTRO 10UF 35WV		
C9 -11			CK45FF1H103Z	CERAMIC 0.010UF Z		
C12			CE04LW1C470M	ELECTRO 47UF 16WV		
C13			CK45FF1H103Z	CERAMIC 0.010UF Z		
C14			CC45FSL1H101J	CERAMIC 100PF J		
C15			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C16 ,17			CK45FF1H223Z	CERAMIC 0.022UF Z		
C18			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C19			CE04LW1H3R3M	ELECTRO 3.3UF 50WV		
C20			CK45FF1H223Z	CERAMIC 0.022UF Z		
C21			CF92FV1H273J	MF 0.027UF J		

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C22			CE04LW1V100M	ELECTRO 10UF 35WV		
C23			CK45FF1H223Z	CERAMIC 0.022UF Z		
C24			CK45FF1H103Z	CERAMIC 0.010UF Z		
C25			CE04LW1C470M	ELECTRO 47UF 16WV	XE	
C30			CE04LW1C470M	ELECTRO 47UF 16WV		
C31			C90-1349-05	NP-ELEC 1UF 50WV		
C32			CF92FV1H473J	MF 0.047UF J		
C33 ,34			CK45FF1H103Z	CERAMIC 0.010UF Z		
C35			CC45FCH1H560J	CERAMIC 56PF J		
C36			CC45FCH1H270J	CERAMIC 27PF J		
C37			CK45FF1H103Z	CERAMIC 0.010UF Z		
C38			CC45FSL1H220J	CERAMIC 22PF J		
C39			CK45FF1H103Z	CERAMIC 0.010UF Z	XE	
C50		*	CE04LW1C331M	ELECTRO 330UF 16WV		
C51			C90-1332-05	NP-ELEC 10UF 16WV		
C52			CK45FB1H471K	CERAMIC 470PF K		
C53			CF92FV1H473J	MF 0.047UF J		
C54			CC45FSL1H151J	CERAMIC 150PF J	XE	
C55 ,56			CC45FSL1H151J	CERAMIC 150PF J	KPM	
C55 ,56			CF92FV1H122J	MF 1200PF J	XE	
C57 ,58			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C59 ,60		*	CE04LW1C220M	ELECTRO 22UF 16WV	XE	
C61			CQ09FS1H471J	POLYSTY 470PF J		
C62			CE04LW1H3R3M	ELECTRO 3.3UF 50WV		
C63			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C64			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C65 ,66			CF92FV1H273J	MF 0.027UF J	M	
C65 ,66		*	CF92FV1H433J	MF 0.043UF J	KP	
C65 ,66			CF92FV1H682J	MF 6800PF J	XE	
C67 ,68			CF92FV1H153J	MF 0.015UF J	M	
C69			CK45FF1H103Z	CERAMIC 0.010UF Z		
C71 ,72			CE04LW1V100M	ELECTRO 10UF 35WV		
C73 ,74			CC45FSL1H221J	CERAMIC 220PF J		
C75 ,76			CF92FV1H222J	MF 2200PF J	XE	
C75 ,76			CK45FB1H561K	CERAMIC 560PF K	KPM	
C77 ,78		*	CE04LW1A101M	ELECTRO 100UF 10WV		
C79 ,80			CF92FV1H123J	MF 0.012UF J		
C81 ,82			CF92FV1H332J	MF 3300PF J		
C83 ,84		*	CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C87 -94			CK45FB1H471K	CERAMIC 470PF K		
C95 ,96			CF92FV1H333J	MF 0.033UF J		
C97 ,98			CF92FV1H104J	MF 0.10UF J		
C101-104			CK45FB1H561K	CERAMIC 560PF K	XE	
C105,106			CF92FV1H153J	MF 0.015UF J		
C107,108			CF92FV1H683J	MF 0.068UF J		
C109,110			CE04JW1V4R7M	ELECTRO 4.7UF 35WV		
C111,112			CF92FV1H822J	MF 8200PF J		
C113,114			CC45FSL1H220J	CERAMIC 22PF J		
C115,116			CC45FSL1H101J	CERAMIC 100PF J		
C117,118			CF92FV1H333J	MF 0.033UF J		
C119		*	CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C120			CE04JW1V4R7M	ELECTRO 4.7UF 35WV		
C121,122			CC45FSL1H331J	CERAMIC 330PF J		
C123		*	CE04JW1E330M	ELECTRO 33UF 25WV		
C124			CE04JW1A101M	ELECTRO 100UF 10WV		

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	C125		*	C91-0937-05	BACKUP 0.047F 5.5WV		
	C126-128			CK45FB1H471K	CERAMIC 470PF K		
	C129,130			CC45FSL1H470J	CERAMIC 47PF J		
	C131,132			CK45FF1H103Z	CERAMIC 0.010UF Z		
	C133,134			C90-1228-05	ELECTRO 3300UF 50WV		
	C135			CK45FB1H102K	CERAMIC 1000PF K		
	C136			CE04LW1V100M	ELECTRO 10UF 35WV		
	C137			CE04LW1C221M	ELECTRO 220UF 16WV		
	C138		*	CE04LW1A470M	ELECTRO 47UF 10WV		
	C139		*	CE04LW1C101M	ELECTRO 100UF 16WV		
	C140			CE04LW1V100M	ELECTRO 10UF 35WV		
	C141		*	CE04LW1A470M	ELECTRO 47UF 10WV		
	C142		*	CE04LW1H100M	ELECTRO 10UF 50WV		
	C144-147		*	CE04LW1C101M	ELECTRO 100UF 16WV		
	C148			CE04LW1V100M	ELECTRO 10UF 35WV		
	C149,150		*	CE04LW1A101M	ELECTRO 100UF 10WV		
	C151			CK45FF1H103Z	CERAMIC 0.010UF Z		
	C152			CE04LW1H010M	ELECTRO 1.0UF 50WV		
	C153			CK45FF1H473Z	CERAMIC 0.047UF Z		
	C154			CE04EW1H010M	ELECTRO 1.0UF 50WV		
	C156			CK45FF1H473Z	CERAMIC 0.047UF Z		
	TC1 ,2			C05-0303-05	CERAMIC TRIMMER CAPACITOR(20PF		
	51	1C		E23-0149-05	TERMINAL		
	E1	2A		E20-0231-05	SCREW TERMINAL BOARD(2P)ANT	XE	
	E1	1C	*	E20-0438-15	SCREW TERMINAL BOARD (ANT)	KPM	
	E3	1C		E13-0621-05	PHONO JACK(6P) VIDEO,CD,PHONO		
	E4	1C		E13-0446-05	PHONO JACK(4P) TAPE		
	E5	1C		E20-0823-05	LOCK TERMINAL BOARD(8P)		
	E6	1B		E11-0162-05	PHONE JACK(3P) PHONES		
⚠	F1	1B		F06-2021-05	FUSE (SEMKO) (250V T2A)	XE	
⚠	F1	1B		F06-4024-05	FUSE (UL) (250V 4A)	KP	
⚠	F1 ,2	1B		F06-2027-05	FUSE (UL) (250V 2A)	M	
	55	1C		J13-0041-05	FUSE CLIP	KPM	
	55	1C		J13-0054-05	FUSE CLIP	XE	
	CF1 ,2			L72-0140-05	CERAMIC FILTER	KPM	
	CF1 ,2			L72-0190-05	CERAMIC FILTER	XE	
	CF3			L72-0096-05	CERAMIC FILTER		
	CF4			L72-0099-05	CERAMIC FILTER		
	L1			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
	L2			L31-0509-05	MW-RF COIL		
	L3			L32-0277-15	MW OSCILLATING COIL		
	L4			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
	L5			L30-0439-15	FM IFT		
	L6			L30-0362-05	AM IFT		
	L7			L79-0125-05	LC FILTER	XE	
	L8			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
	L9			L79-0739-05	LC FILTER	XE	
	L10 ,11			L39-0085-05	PHASE-COMPENSATION COIL		
	X1			L77-0573-05	CRYSTAL RESONATOR(4.5MHZ)		
	X2			L78-0202-05	RESONATOR (400KHZ)		
	J	1B,1C		N09-0333-05	TAPPING SCREW (Ø3X12)		

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CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R2			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R10			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
R19			RD14GB2E471J	FL-PROOF RD 470 J 1/4W		
R22			RD14GB2E101J	FL-PROOF RD 100 J 1/4W	XE	
R33			RD14GB2E151J	FL-PROOF RD 150 J 1/4W		
R34			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R43			RS14KB3A181J	FL-PROOF RS 180 J 1W		
R50			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R113,114			RS14KB3A4R7J	FL-PROOF RS 4.7 J 1W		
R119,120			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
R121,122			RS14KB3A561J	FL-PROOF RS 560 J 1W		
R164		*	RS14KB3D180J	FL-PROOF RS 18 J 2W		
R165-167			RS14KB3D102J	FL-PROOF RS 1.0K J 2W		
R170			RD14GB2E821J	FL-PROOF RD 820 J 1/4W		
R173			RS14KB3A182J	FL-PROOF RS 1.8K J 1W		
R174			RD14GB2E470J	FL-PROOF RD 47 J 1/4W		
R175			RS14KB3A561J	FL-PROOF RS 560 J 1W		
R178			RS14KB3A222J	FL-PROOF RS 2.2K J 1W		
R179			RD14GB2E4R7J	FL-PROOF RD 4.7 J 1/4W		
R180			RS14KB3D122J	FL-PROOF RS 1.2K J 2W		
R181,182			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R183			R92-0173-05	RC 2.2M M 1/2W	KP	
R184-188			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
VR1			R12-3097-05	TRIMMING POT.(22K)AM TUNE		
VR2			R12-3096-05	TRIMMING POT.(10K)FM TUNE		
VR3			R12-5047-05	TRIMMING POT.(220K)FM SEPA	XE	
VR4			R12-1069-05	TRIMMING POT.(4.7K)FM VCO		
VR5	2B	*	R06-5156-15	POTENTIOMETER(100KB)VOLUME		
VR6	2B		R01-5041-05	POTENTIOMETER(200K)BALANCE		
VR7 -10	1B	*	R05-5013-05	POTENTIOMETER(BASS,TREBLE)		
S1 ,2	2C		S31-2072-05	SLIDE SWITCH (FM DE-EMPH,CH SP	M	
S3	2B		S40-2351-05	PUSH SWITCH (LOUDNESS)		
S4	1B		S42-2155-05	MULTIPLE PUSH SWITCH(SPEAKERS)		
S5	2B		S31-2113-05	SLIDE SWITCH (INPEDANCE SEL)		
⚠ S6	1C		S31-2115-05	SLIDE SWITCH (VOLT SEL)	M	
S7 -22	1B		S40-1064-05	PUSH SWITCH (CH,TU,M,BAND)		
S24 -28	1B		S40-1064-05	PUSH SWITCH (TAPE,VIDEO)		
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
D3			KV1236(Z2)	VARIABLE CAPACITANCE DIODE		
D4 ,5			1SS133	DIODE		
D4 ,5			1SS176	DIODE		
D6			HZS5.1N(B2)	ZENER DIODE		
D6			RD5.1ES(B2)	ZENER DIODE		
D7 -27			1SS133	DIODE		
D7 -27			1SS176	DIODE		
D28			HZS10N(B)	ZENER DIODE		
D28			RD10ES(B)	ZENER DIODE		
D29 -39			1SS133	DIODE		
D29 -39			1SS176	DIODE		
D41 -43			1SS133	DIODE	MXE	
D41 -43			1SS176	DIODE	MXE	

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D41 ,42			1SS133	DIODE	KP	
D41 ,42			1SS176	DIODE	KP	
D49			RBV-402LFA	DIODE		
D50 ,51			HZS6.2N(B2)	ZENER DIODE		
D50 ,51			RD6.2ES(B2)	ZENER DIODE		
D52			1SS133	DIODE		
D52			1SS176	DIODE		
D53			HZS15N(B)	ZENER DIODE		
D53			RD15ES(B)	ZENER DIODE		
D54			DSM1A1	DIODE		
D55			HZS24N(B)	ZENER DIODE		
D55			RD24ES(B)	ZENER DIODE		
D56			HZS6.2N(B2)	ZENER DIODE		
D56			RD6.2ES(B2)	ZENER DIODE		
D57			HZS5.1N(B2)	ZENER DIODE		
D57			RD5.1ES(B2)	ZENER DIODE		
D58 -60			1SS133	DIODE		
D58 -60			1SS176	DIODE		
D61			HZS4.7N(B)	ZENER DIODE		
D61			RD4.7ES(B)	ZENER DIODE		
D62 ,63			1SS133	DIODE		
D62 ,63			1SS176	DIODE		
FL1	1B	*	FIP8BRM7A	FLUORESCENT INDICATOR TUBE		
IC1			LA1265	IC(FM/AM TUNER)		
IC2			CX7925B	IC(FREQUENCY SYNTHESIZER PLL)		
IC3			AN7470	IC(FM MPX)		
IC4			M5218P-A	IC(OP AMP X2)		
IC4		*	NJM4558D-A	IC(OP AMP X2)		
IC5		*	LC7820	IC(ELECTRO CONTROL SWITCH)		
IC6		*	UPD7538AC-041	IC(MICROPROCESSOR)		
Q1			2SC1923(R,S)	TRANSISTOR		
Q2			2SC945(A)(Q,P)	TRANSISTOR	XE	
Q3			2SC1845(F,E)	TRANSISTOR		
Q4 ,5			2SC945(A)(Q,P)	TRANSISTOR		
Q6			2SA733(A)(Q,P)	TRANSISTOR		
Q7			2SC945(A)(Q,P)	TRANSISTOR		
Q8			2SA733(A)(Q,P)	TRANSISTOR		
Q9 ,10			2SC3853	TRANSISTOR		
Q11 ,12			2SA1489	TRANSISTOR		
Q13 ,14			2SC1845(F,E)	TRANSISTOR		
Q15 -18			2SC2878	TRANSISTOR		
Q19 -21			2SA733(A)(Q,P)	TRANSISTOR	KPXE	
Q19 -22			2SA733(A)(Q,P)	TRANSISTOR	M	
Q23 ,24			2SC945(A)(Q,P)	TRANSISTOR		
Q25			2SC2167	TRANSISTOR		
Q26			2SC945(A)(Q,P)	TRANSISTOR		
Q27			2SC2003(L,K)	TRANSISTOR		
Q28			2SC945(A)(Q,P)	TRANSISTOR		
Q29			2SA954(L,K)	TRANSISTOR		
FRONT-END UNIT (X86-1040-11) K, P & M Type						
C1		*	CC41FSL1H060D	CYLND CHIP C 6.0PF D		
C2			C93-0012-05	CYLND CHIP C 0.01UF M		
C3		*	CC41FSL1H100D	CYLND CHIP C 10PF D		
C4			C93-0012-05	CYLND CHIP C 0.01UF M		
C5			CK41FB1H221K	CYLND CHIP C 220PF K		

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⚠ indicates safety critical components.

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C6		*	CC41FSL1H070D	CYLND CHIP C 7.0PF D		
C8			CC41FSL1H020C	CYLND CHIP C 2.0PF C		
C9			CK41FB1H221K	CYLND CHIP C 220PF K		
C10			C93-0012-05	CYLND CHIP C 0.01UF M		
C11		*	CC41FSL1H080D	CYLND CHIP C 8.0PF D		
C12		*	CC41FSL1H010C	CYLND CHIP C 1.0PF C		
C14			C93-0012-05	CYLND CHIP C 0.01UF M		
C16		*	CC41FSL1H080D	CYLND CHIP C 8.0PF D		
C17			CC41FSL1H330J	CYLND CHIP C 33PF J		
C18		*	CC41FSL1H150J	CYLND CHIP C 15PF J		
C19		*	CC41FSL1H010C	CYLND CHIP C 1.0PF C		
C20			CK41FY1E102M	CYLND CHIP C 1000PF M		
C21		*	CC41FSL1H470J	CYLND CHIP C 47PF J		
TC1			C05-0302-05	CERAMIC TRIMMER CAPACITOR(11PF		
L1		*	L31-0551-05	FM-RF COIL		
L2		*	L31-0552-05	FM-RF COIL		
L3		*	L31-0553-05	FM-RF COIL		
L4			L40-1092-16	SMALL FIXED INDUCTOR(1UH,M)		
L7			L32-0318-05	FM OSCILLATING COIL		
T1		*	L30-0427-15	FM IFT		
-			R92-0338-05	CLYND CHIP R 0 OHM		
R1 ,2			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R3		*	RD41FB2B470J	CYLND CHIP R 47 J 1/8W		
R4			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R5			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R6			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R9			RD41FB2B105J	CYLND CHIP R 1.0M J 1/8W		
R11			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R14			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R15 ,16			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R17			RD41FB2B222J	CYLND CHIP R 2.2K J 1/8W		
R18			RD41FB2B224J	CYLND CHIP R 220K J 1/8W		
R19 ,20			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R21			RD41FB2B100J	CYLND CHIP R 10 J 1/8W		
D1		*	KV1310A-3	VARIABLE CAPACITANCE DIODE		
Q1			2SK302(Y,GR)	FET		
Q2		*	2SC2714(O)	TRANSISTOR		
Q4 ,5		*	2SC2714(R,O)	TRANSISTOR		
FRONT-END UNIT (X86-1052-71) X & E Type						
C1			CC41FSL1H060D	CYLND CHIP C 6.0PF D		
C2			C93-0012-05	CYLND CHIP C 0.01UF M		
C3			CC41FSL1H100D	CYLND CHIP C 10PF D		
C4			C93-0012-05	CYLND CHIP C 0.01UF M		
C5			CK41FB1H221K	CYLND CHIP C 220PF K		
C6			CC41FSL1H100D	CYLND CHIP C 10PF D		
C7			CC41FSL1H060D	CYLND CHIP C 6.0PF D		
C8			CC41FSL1H100D	CYLND CHIP C 10PF D		
C9			CK41FB1H221K	CYLND CHIP C 220PF K		
C10			C93-0012-05	CYLND CHIP C 0.01UF M		
C11			CK41FY1E102M	CYLND CHIP C 1000PF M		
C12		*	CC41FSL1H030C	CYLND CHIP C 3.0PF C		
C13			CC41FSL1H100D	CYLND CHIP C 10PF D		
C14			C93-0012-05	CYLND CHIP C 0.01UF M		
C16			CC41FSL1H080D	CYLND CHIP C 8.0PF D		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C17			CC41FSL1H330J	CYLND CHIP C 33PF J		
C18			CC41FSL1H150J	CYLND CHIP C 15PF J		
C19			CC41FSL1H010C	CYLND CHIP C 1.0PF C		
C20			CK41FY1E102M	CYLND CHIP C 1000PF M		
C21			CC41FSL1H470J	CYLND CHIP C 47PF J		
TC1			C05-0302-05	CERAMIC TRIMMER CAPACITOR(11PF		
L1			L31-0551-05	FM-RF COIL		
L2			L31-0552-05	FM-RF COIL		
L3			L31-0553-05	FM-RF COIL		
L4			L40-1092-16	SMALL FIXED INDUCTOR(1UH,M)		
L5		*	L31-0554-05	FM-RF COIL		
L7			L32-0318-05	FM OSCILLATING COIL		
T1			L30-0427-15	FM IFT		
-			R92-0338-05	CLYND CHIP R 0 OHM		
R1			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R2			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R3			RD41FB2B470J	CYLND CHIP R 47 J 1/8W		
R4			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R5			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R6 ,7			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R8 ,9			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R11			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R12			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R13			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R14			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R15 ,16			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R17			RD41FB2B222J	CYLND CHIP R 2.2K J 1/8W		
R18			RD41FB2B224J	CYLND CHIP R 220K J 1/8W		
R19 ,20			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R21			RD41FB2B100J	CYLND CHIP R 10 J 1/8W		
D1 -4			KV1310-4	VARIABLE CAPACITANCE DIODE		
Q1			2SK302(Y,GR)	FET		
Q2		*	3SK131(M,L)	FET		
Q3			2SK302(Y,GR)	FET		
Q4 ,5			2SC2714(R,O)	TRANSISTOR		

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KR-A46

SPECIFICATIONS

Audio Section

Power Output

40 watts per channel minimum RMS, both channel driven at 8 ohms from 40 Hz to 20,000 Hz with no more than 0.09% total harmonic distortion.

45 watts per channel minimum RMS, both channel driven at 8 ohms from 1 kHz with no more than 0.09% total harmonic distortion.

Total Harmonic Distortion	
(40 Hz – 20,000 Hz, 8 ohms)	0.09% at 40 W
(1 kHz, 8 ohms)	0.01% at 40 W
Intermodulation Distortion	0.09% at 40 W
Input Sensitivity/Impedance	
PHONO (MM)	2.5 mV/47 kohms
CD/AUX, TAPE, VIDEO	150 mV/47 kohms
Signal to Noise Ratio	
PHONO (MM)	72 dB
CD/AUX, TAPE, VIDEO	95 dB
Frequency Response	
PHONO	
(RIAA Standard Curve)	20 Hz – 20 kHz, ±0.5 dB
CD/AUX, TAPE, VIDEO	10 Hz – 70 kHz, +0, –3 dB

FM Tuner Section

Tuning Frequency Range	87.5 MHz – 108 MHz
Antenna Impedance	300 ohms balanced & 75 ohms unbalanced
Usable Sensitivity	11.2 dBf (2.0 μV)
50 dB Quieting Sensitivity	
MONO	17.2 dBf (4 μV)
STEREO	38.2 dBf (45 μV)
Signal to Noise Ratio at 65 dBf	
Mono	76 dB
Stereo	72 dB
Total Harmonic Distortion at 1,000 Hz	
Mono	0.2%
Stereo	0.3%
Frequency response	30 Hz to 15,000 Hz +0.5 dB, −2.5 dB
Stereo Separation	40 dB at 1,000 Hz
Selectivity	53 dB at 400 kHz
Capture Ratio	1.2 dB
Image Rejection Ratio	40 dB
IF Rejection Ratio	86 dB
Spurious Rejection Ratio	80 dB
AM Suppression Ratio	57 dB

AM Tuner Section

Tuning Range

(530 kHz – 1,610 kHz) with the AM tuning interval set at 10 kHz

Usable Sensitivity	15 μV (440 μV/m)
Signal to Noise Ratio	50 dB
Selectivity	25 dB

General

Power Requirement	120V, 60 Hz
Power Consumption	2A... USA Model
AC Outlet	Unswitched (200W)
Dimensions	W: 420 mm (16-17/32")
	H: 109 mm (4-19/64")
	D: 236 mm (9-19/64")
Weight	Net... 4.6 kg (10.1 lb)

Note:

We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Note

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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